



US Army Corps  
of Engineers

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TECHNICAL REPORT GL-88-5

# **GEOLOGICAL INVESTIGATION OF THE PEARL RIVER BASIN**

by

**J. B. Dunbar**

**DEPARTMENT OF THE ARMY**  
**Waterways Experiment Station, Corps of Engineers**  
**PO Box 631**  
**Vicksburg, Mississippi 39180-0631**

**DTIC**  
**ELECTE**  
**NOV 04 1993**

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TECHNICAL REPORT GL-88-5

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**urg, Mississippi 39180-0631**

**DTIC**

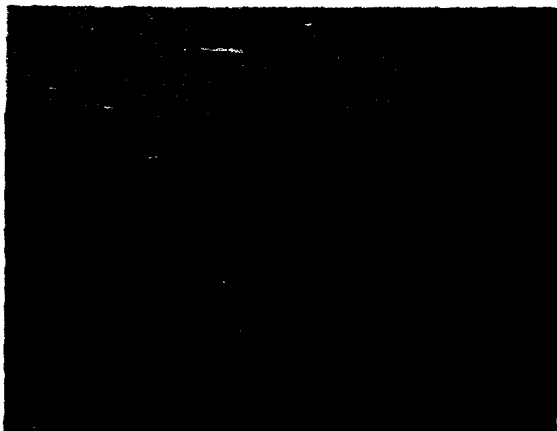
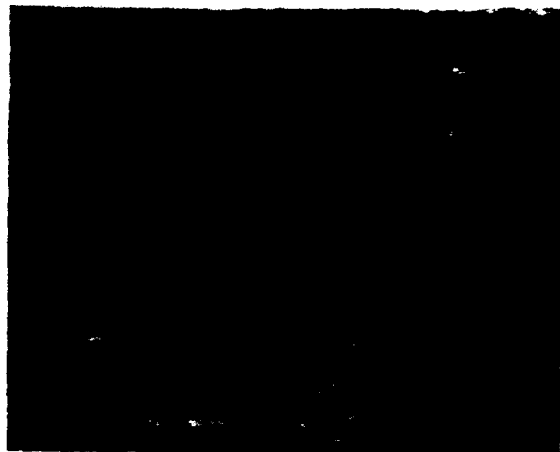
**ELECTE**

**NOV 04 1993**

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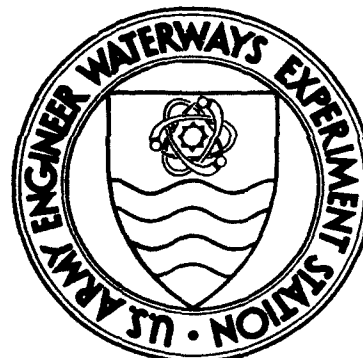


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**PO Box 631**  
**Vicksburg, Mississippi 39180-0631**

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**ELECTE**  
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**S A D**



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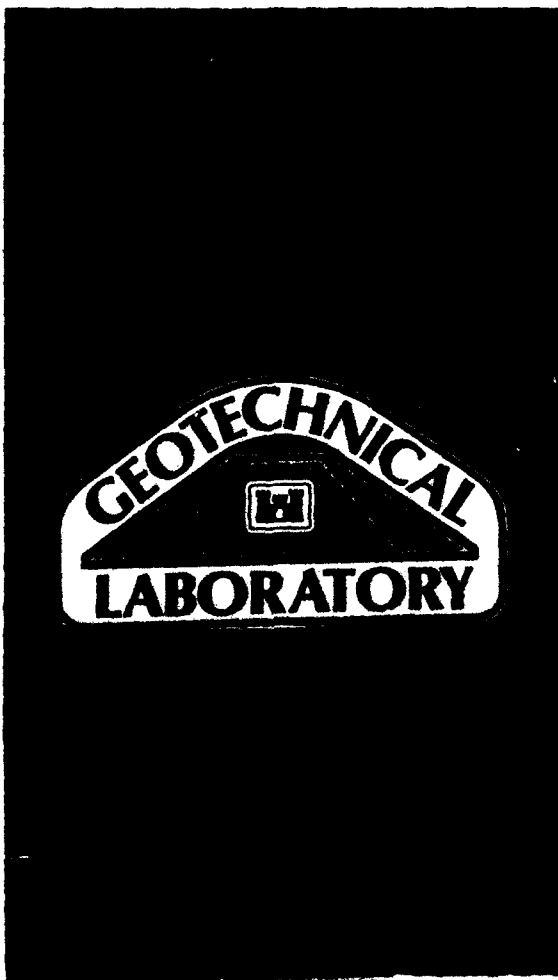
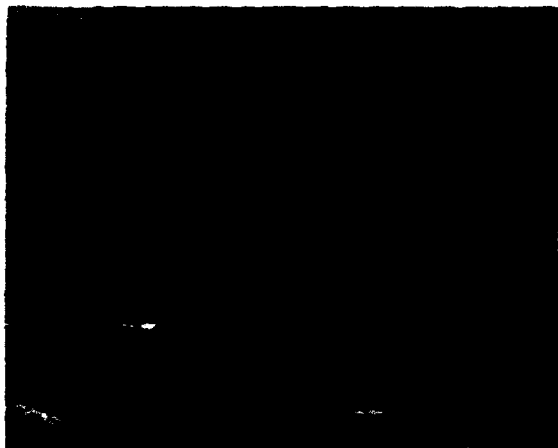
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NOV 04 1993  
S A D



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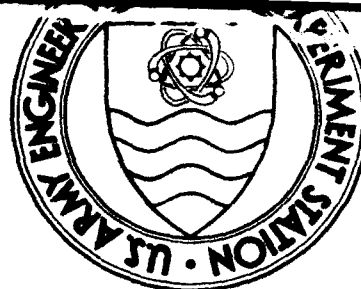
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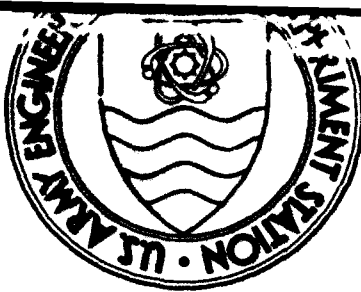
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**U.S. Army Engineer District, Vicksburg  
Vicksburg, Mississippi**

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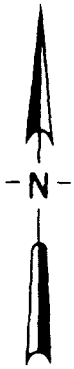
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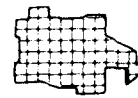
**Vicksburg, Mississippi**

**98 11 3 047**



90° 00'  
32° 45'

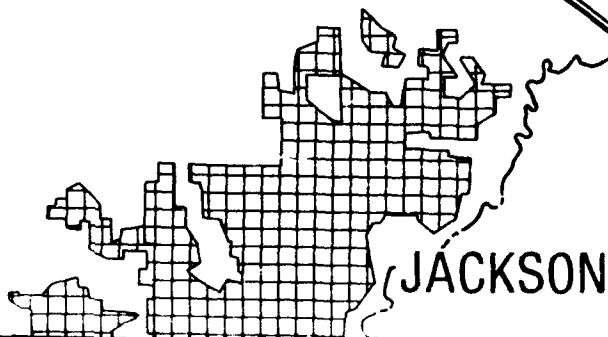
Canton



SHARON



PELAHATCHI



Pelahatchi

89° 45'

Carthage



CARTHAGE

32° 30'

MORTON

Morton

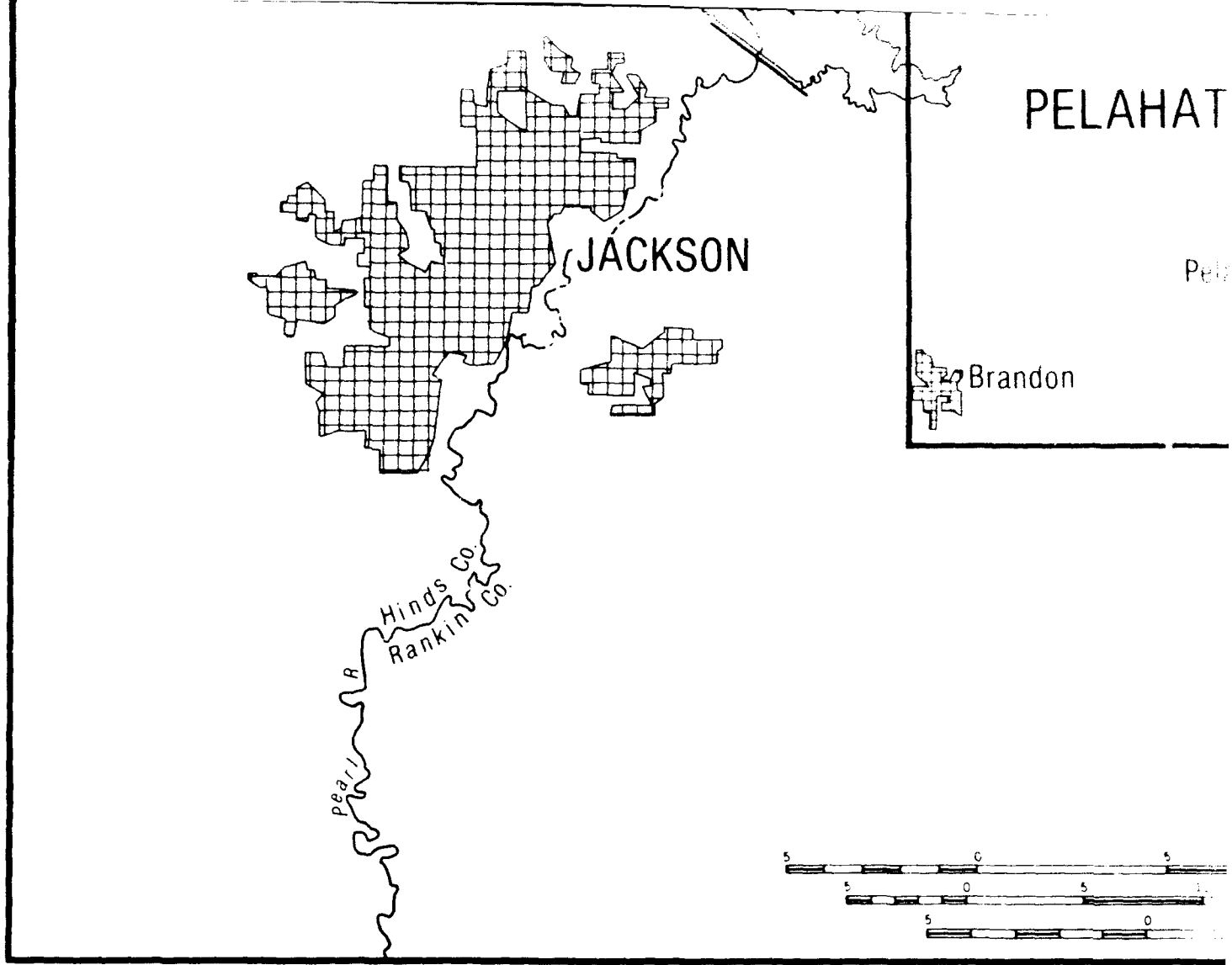


Forest

HIE

chie





# GEOLOGICAL PEARL R.

ATCHIE

MORTON



Pelahatchie



32° 15'

89° 30'

SCALE

10 15 20 Statute Miles

15 20 25 30 Kilometers

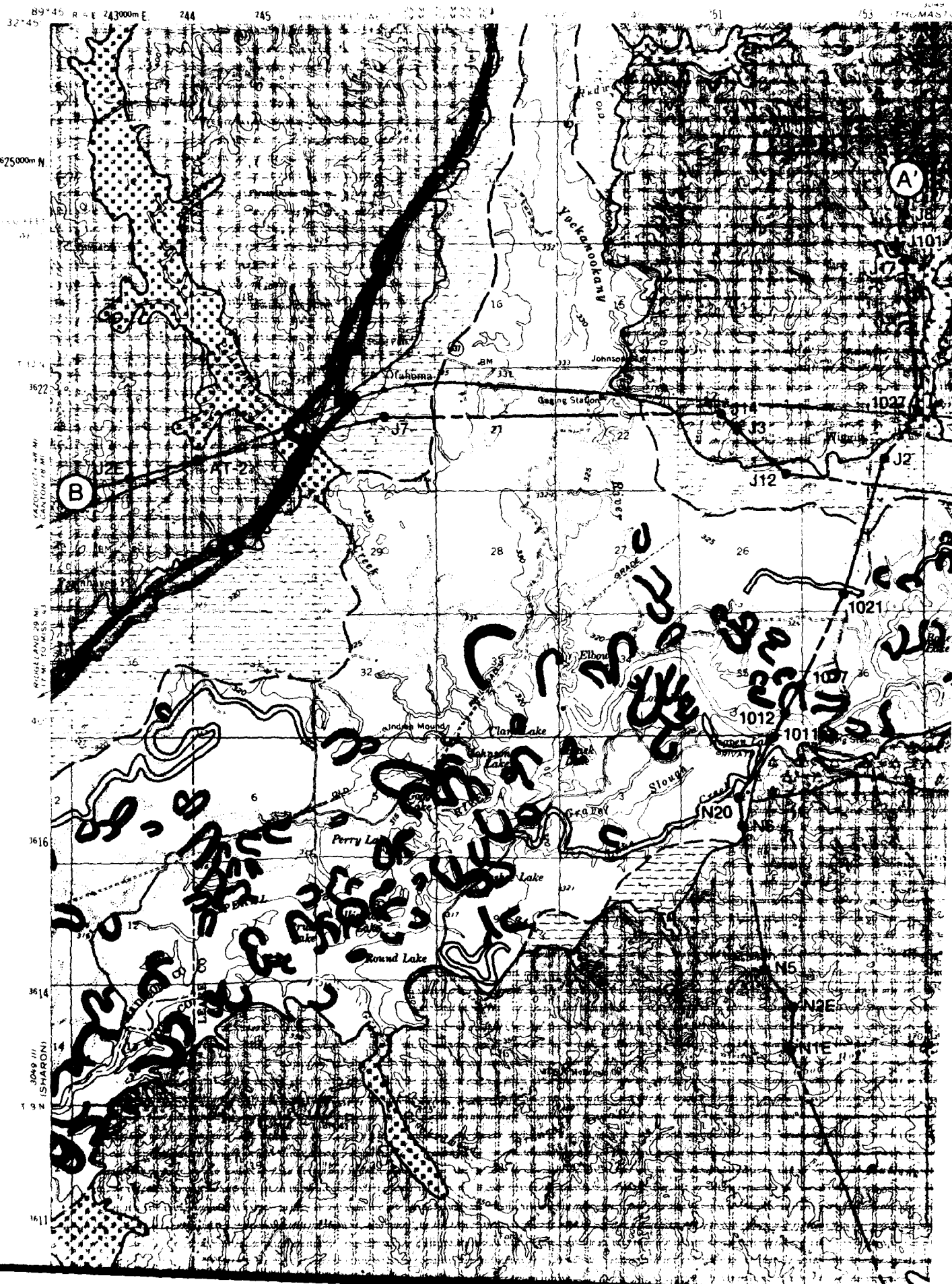
5 10 Nautical Miles

# AL INVESTIGATION RIVER BASIN

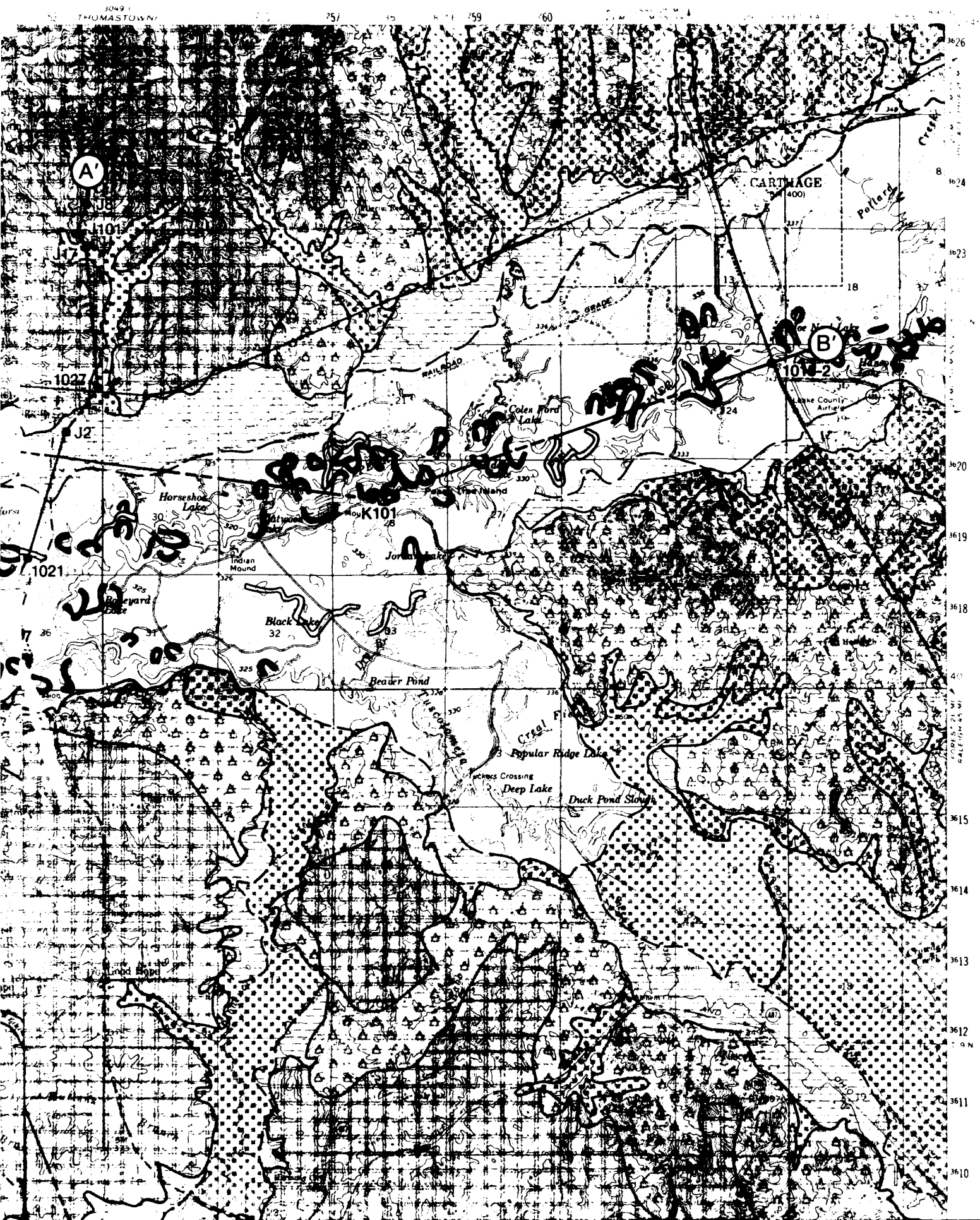
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By	
Distribution/	
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Dist	Avail and/or Special
A-1	

FORM 10-68

U.S. ARMY  
CORPS OF ENGINEERS

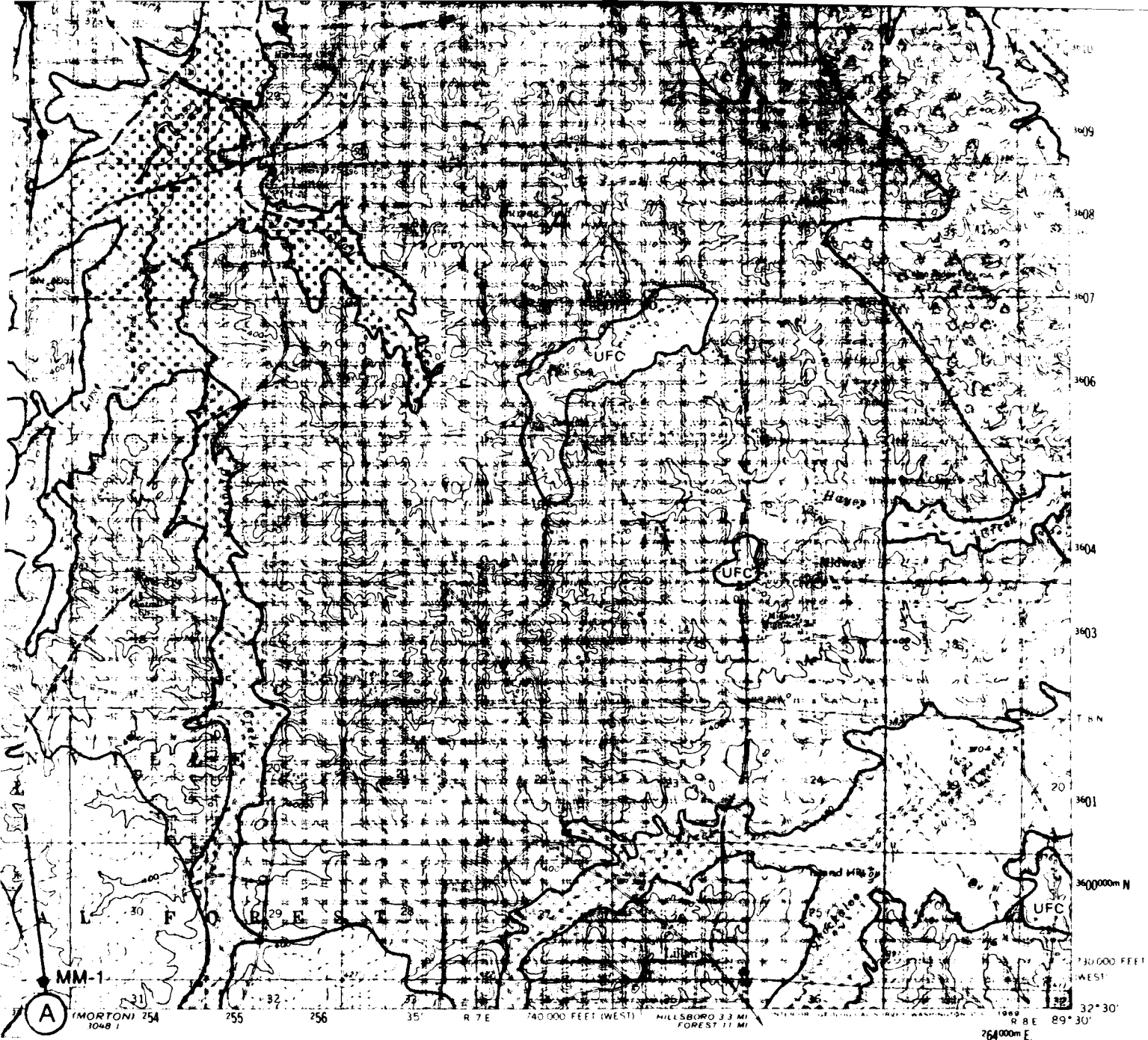


CARTHAGE QUADRANGLE  
MISSISSIPPI

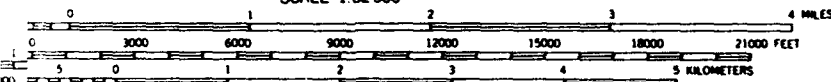








SCALE 1:62500



CONTOUR INTERVAL 10 FEET  
 DOTTED LINES REPRESENT 5-FOOT CONTOURS  
 DATUM IS MEAN SEA LEVEL

Upland geologic contacts based on work by Priddy (1960), "Madison County Geology," Mississippi State Geological Survey Bulletin No. 88; Brown (1960), "Geologic Study Along Highway 16 from Alabama Line to Canton, Mississippi," Mississippi Geological Survey Bulletin No. 89; and Moore (1969), "Geologic Map of Mississippi," Mississippi Geological Survey.

GEOLOGICAL INVESTIGATION  
 PEARL RIVER BASIN

SURFACE GEOLOGY

CARTHAGE, MS

A

MS HWY 13

AS LOST CREEK

COLOMBO CREEK

NTR

UNDIFF HOLOCENE ALLUVIUM

COCKFIELD FORMATION

EOCENE

IBORNE GROUP

JACKSON GROUP

YAZOO FM.

MOODYS BRANCH FM.

ELEVATION IN FEET NGVD

120

140

160

180

200

220

240

260

280

300

320

340

360

380

400

420

440

460

480

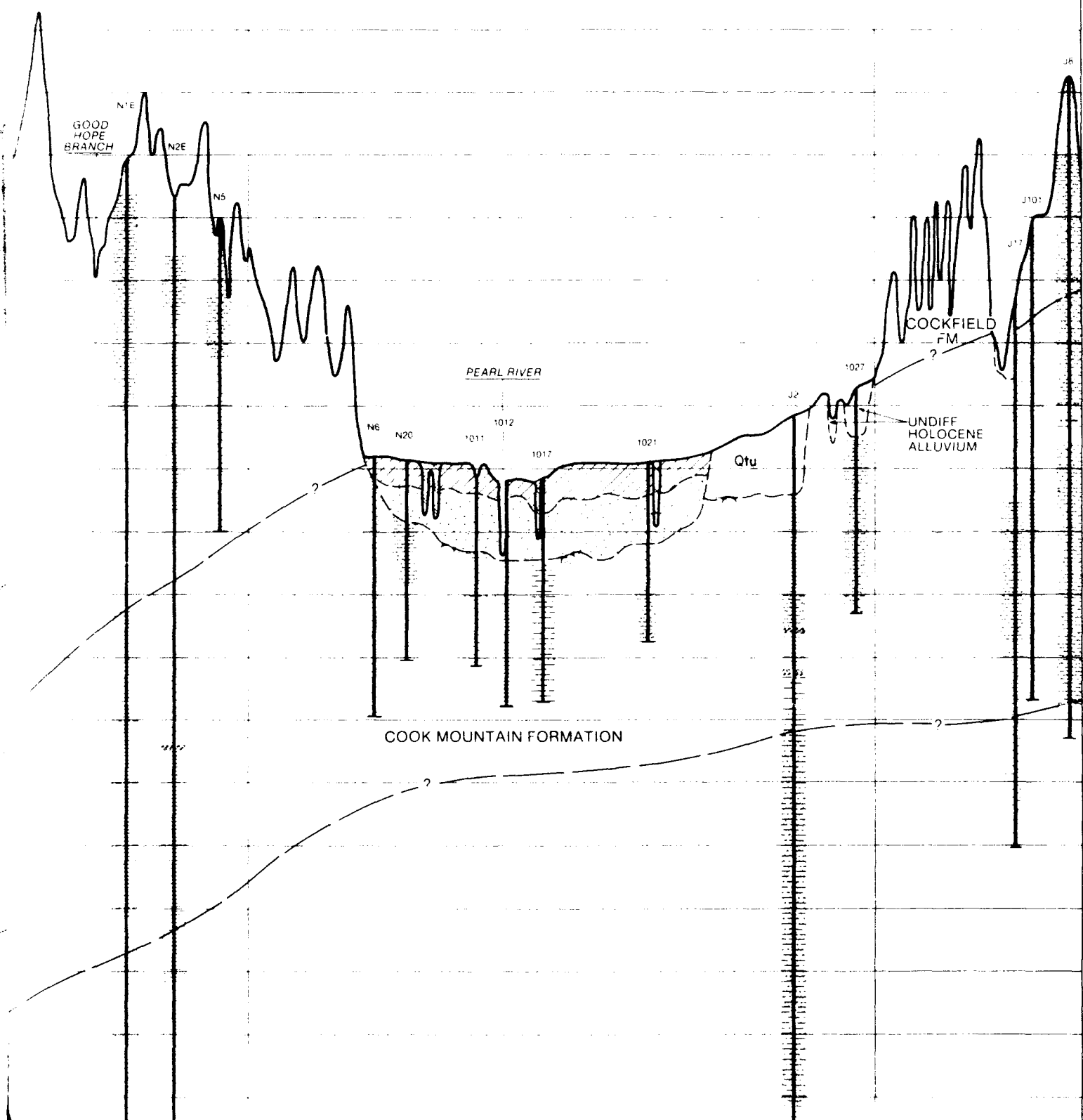
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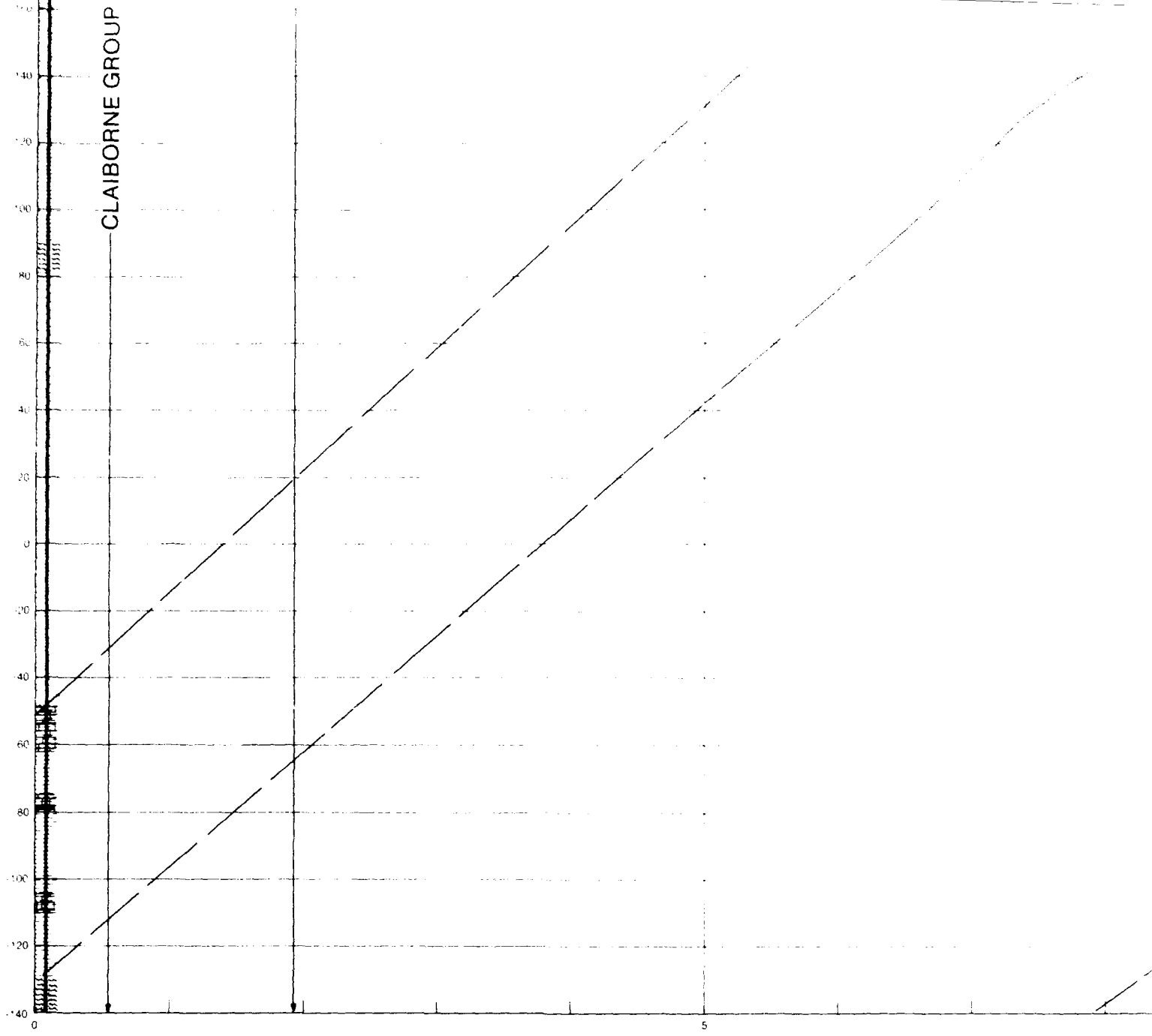
520

540

MMT

A'





### ENVIRONMENTS OF DEPOSITION

TOPSTRATUM		POINT BAR
		ABANDONED CHANNEL
		ABANDONED COURSE
SUBSTRATUM		UNDIFFERENTIATED SAND

### LEGEND

#### LITHOLOGIC TYPES

	CLAY		MARL
	SAND		SHALE
	ROCKS		LIGNITE

#### MAPPING SYMBOLS

	UNDIFFERENTIATED TERRACE
	TERTIARY SURFACE

KOSCIUSKO FORMATION

ZILPHA FORMATION

DISTANCE IN MILES

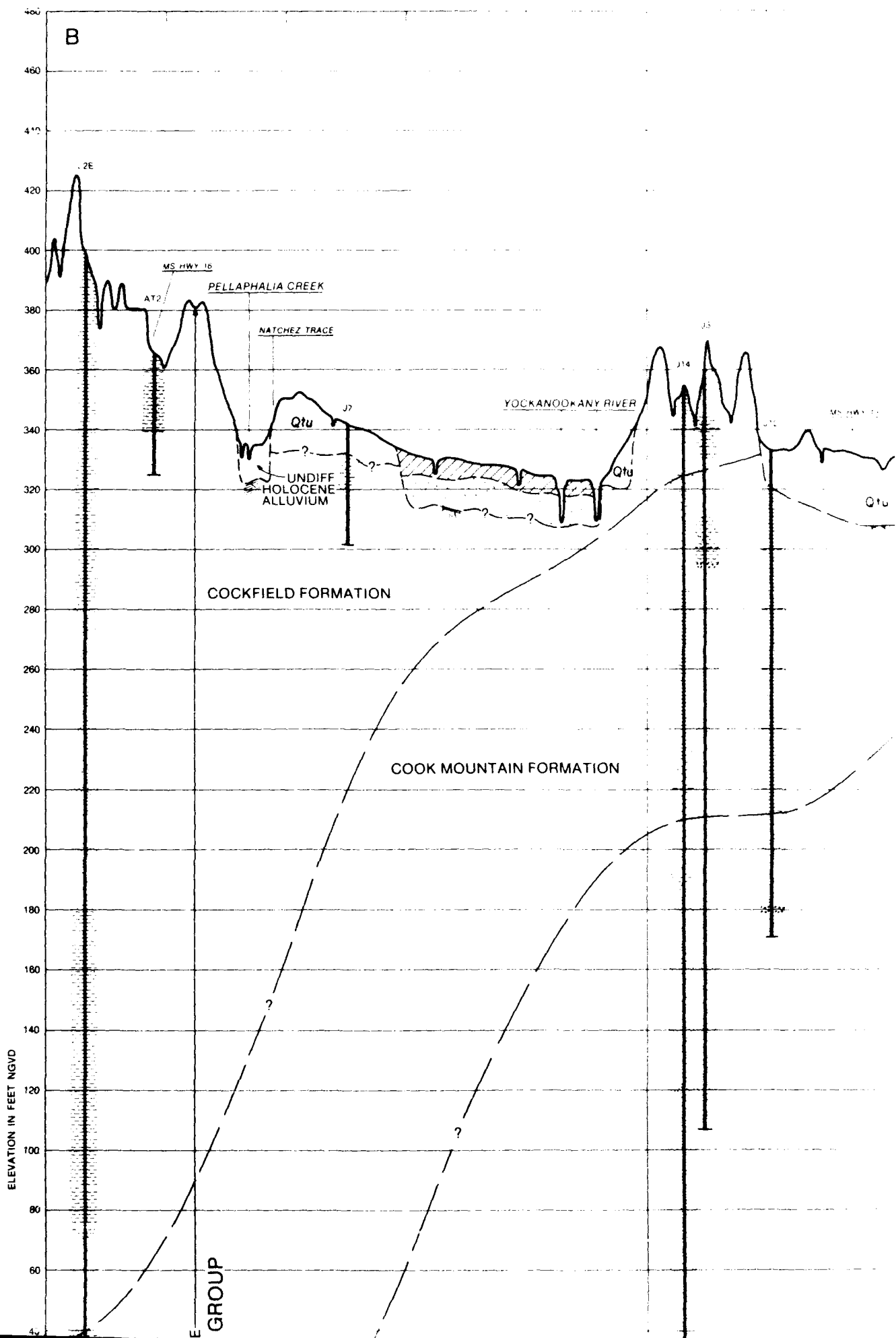
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15

GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION A-A'

CARTHAGE, MS.



B'

PEACH TREE ISLAND

MS. HWY. 35

PEARL RIVER

PEARL RIVER

PEARL RIVER

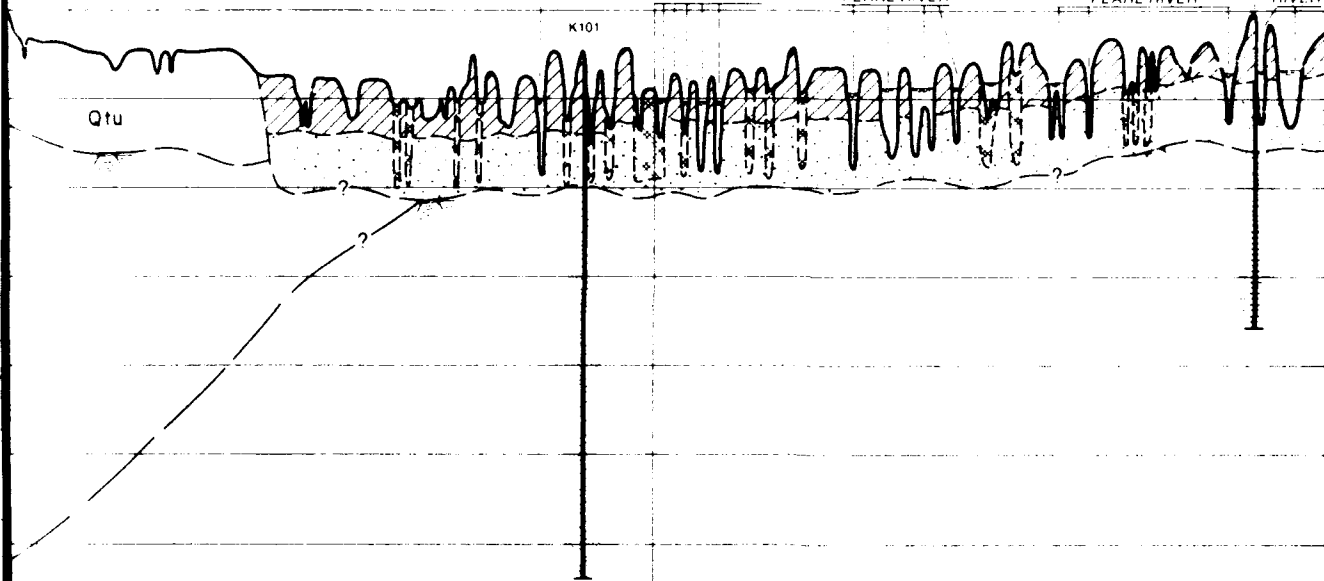
PEARL RIVER

PEARL RIVER

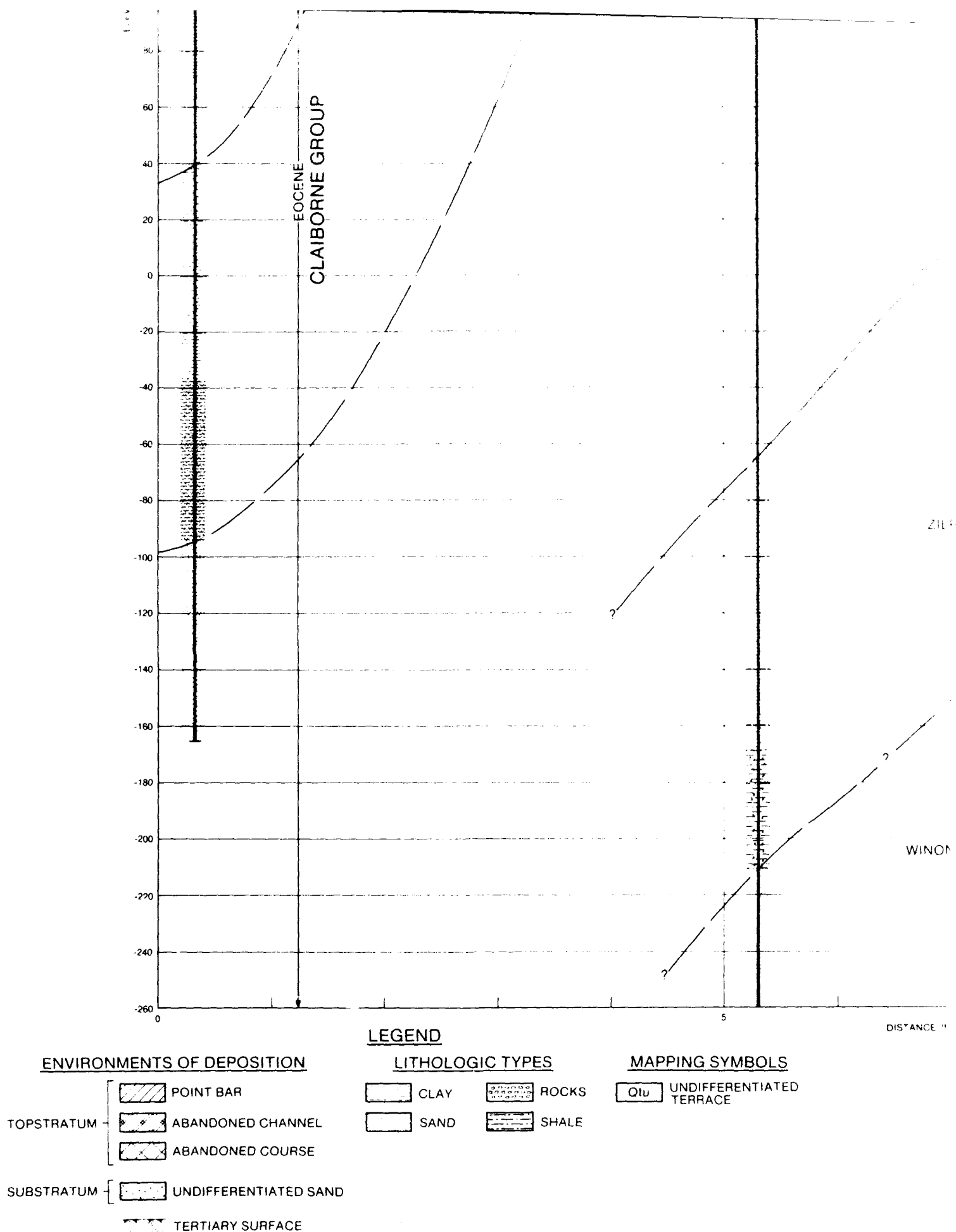
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Qtu

KOSCIUSKO FORMATION









ZILPHA FORMATION

WINONA FORMATION

DISTANCE IN MILES

10

13

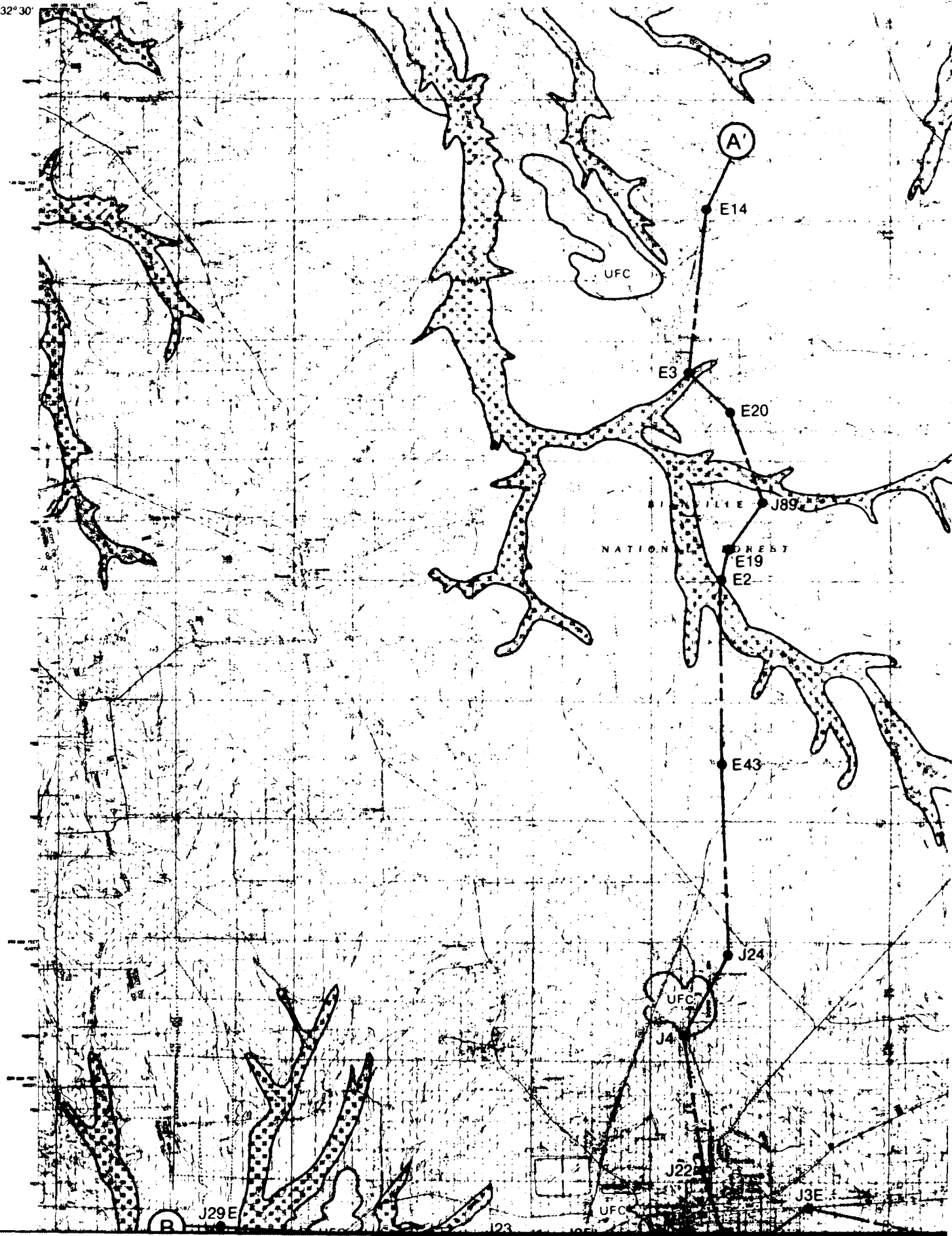
GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION B-B'

CARTHAGE, MS.

U.S. ARMY  
CORPS OF ENGINEERS

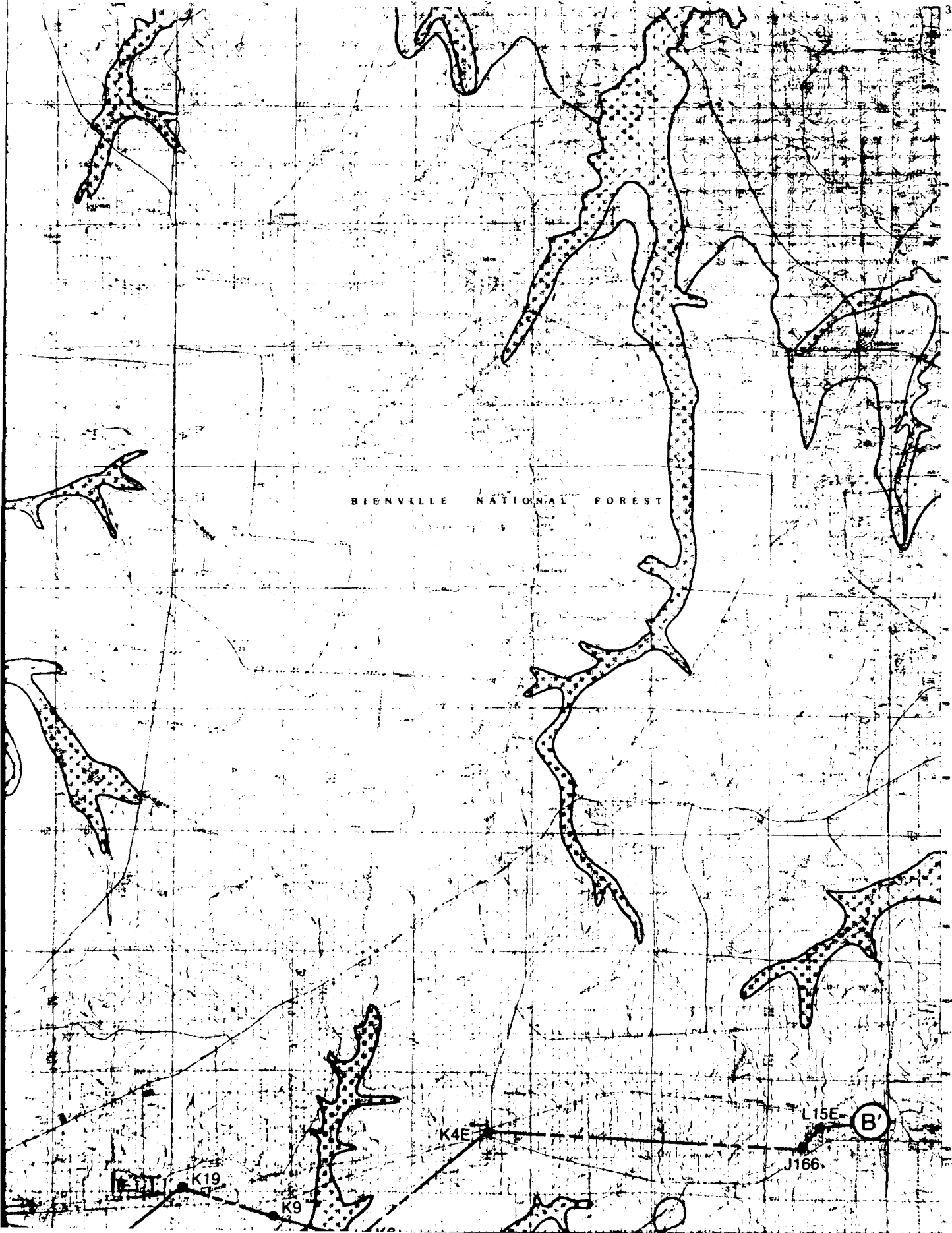
89° 45'  
32° 30'

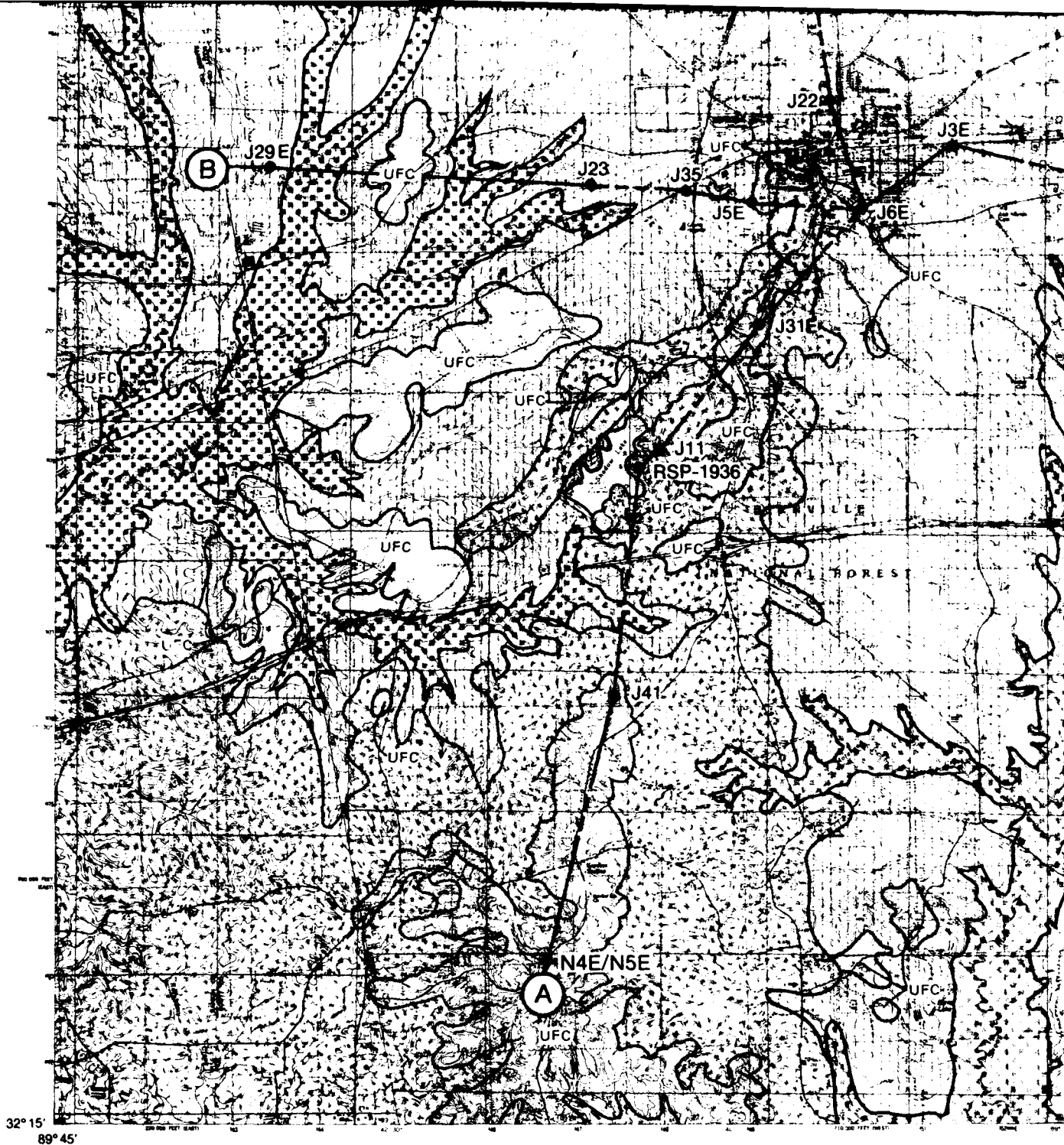


MORTON QUADRANGLE  
MISSISSIPPI

89° 30'  
32° 30'

BIENVILLE NATIONAL FOREST





### LEGEND

#### QUATERNARY

##### HOLOCENE

UNDIFFERENTIATED ALLUVIUM

#### QUATERNARY/TERTIARY

##### PLIO-PLEISTOCENE

UFC UPLAND FLUVIAL COMPLEX

#### TERTIARY

##### OLIGOCENE

VICKSBURG GROUP (UNDIFFERENTIATED)

FOREST HILL FORMATION

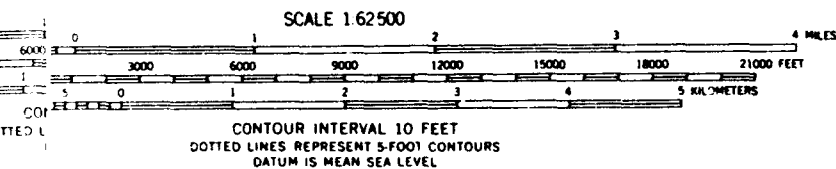
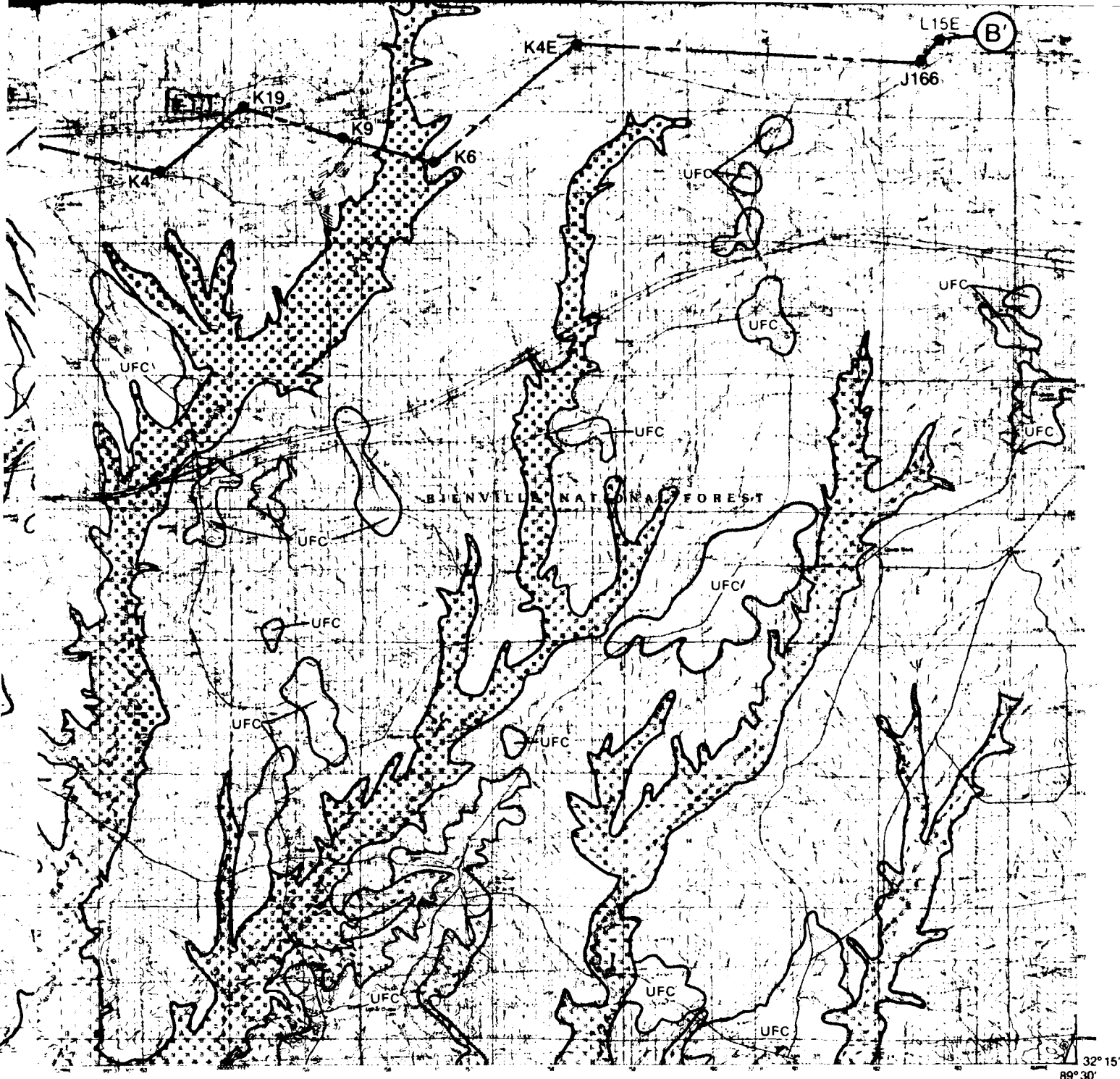
##### EOCENE

JACKSON GROUP (YAZOO AND MOODYS BRANCH FORMATIONS)

COCKFIELD FORMATION

● BORINGS USED ON CROSS SECTIONS

NOTE: Upland geologic Geology, Mississ

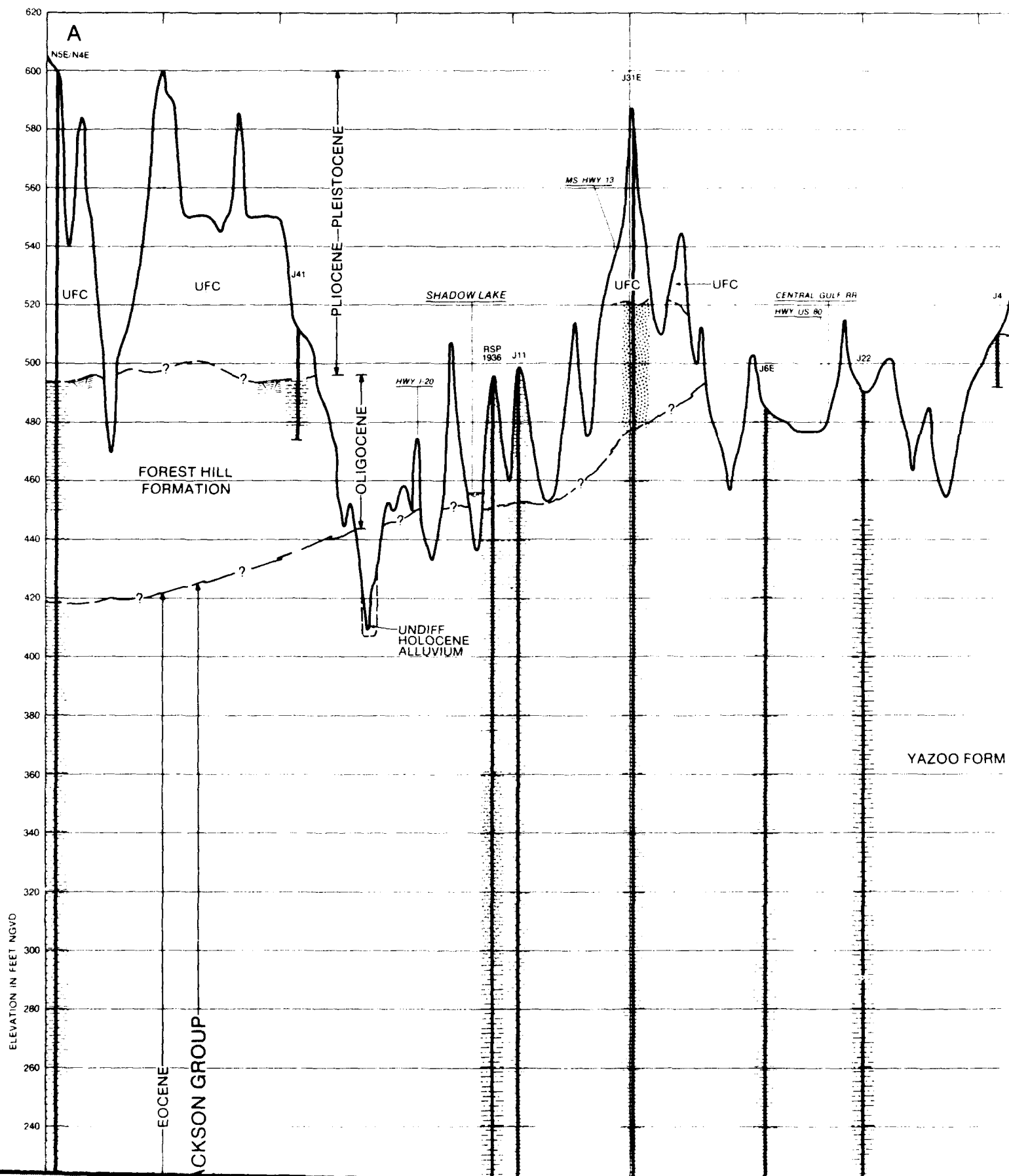


Geologic contacts based on work by Morse (1942), "Scott County  
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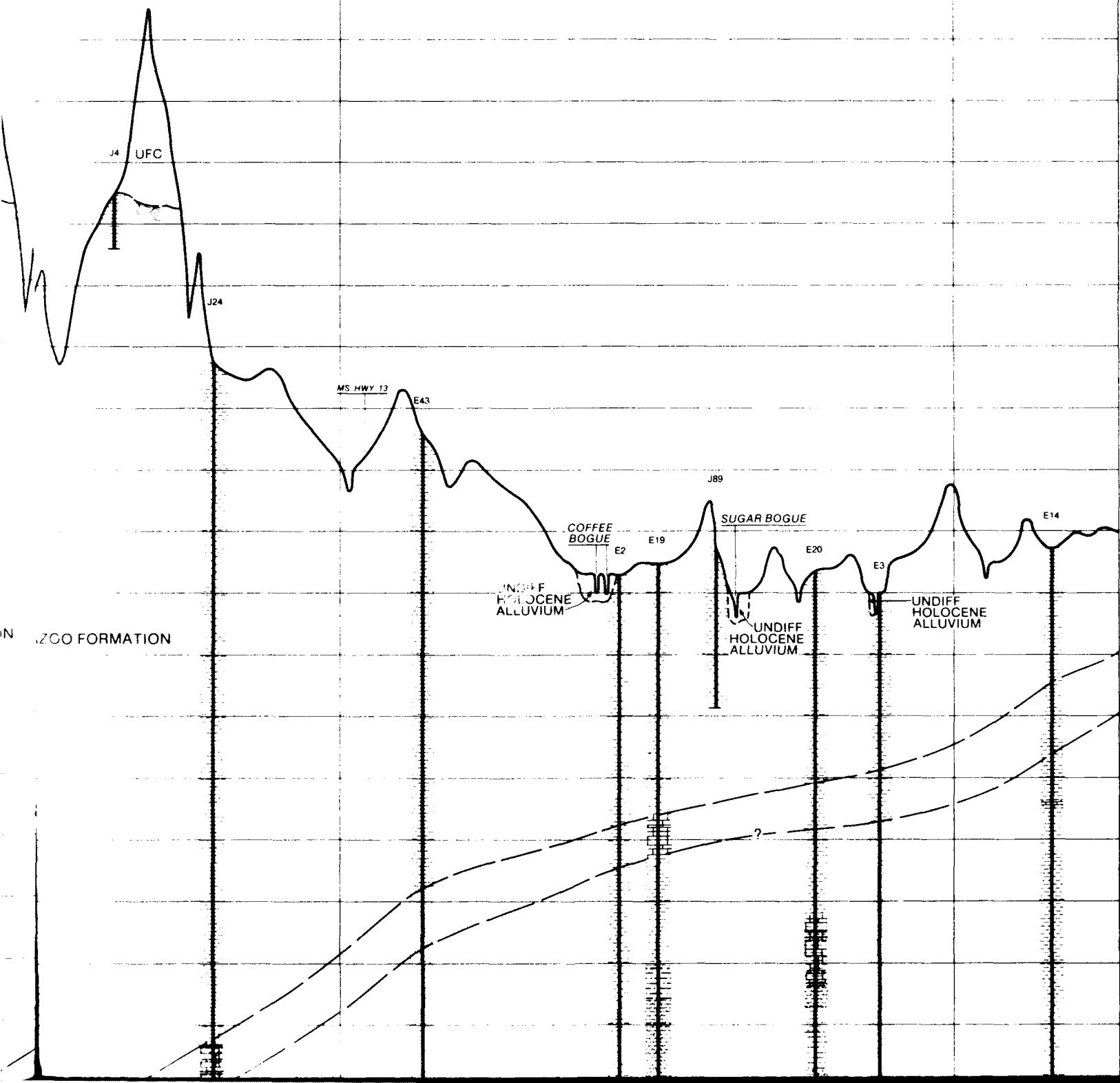
GEOLOGICAL INVESTIGATION  
 PEARL RIVER BASIN

SURFACE GEOLOGY

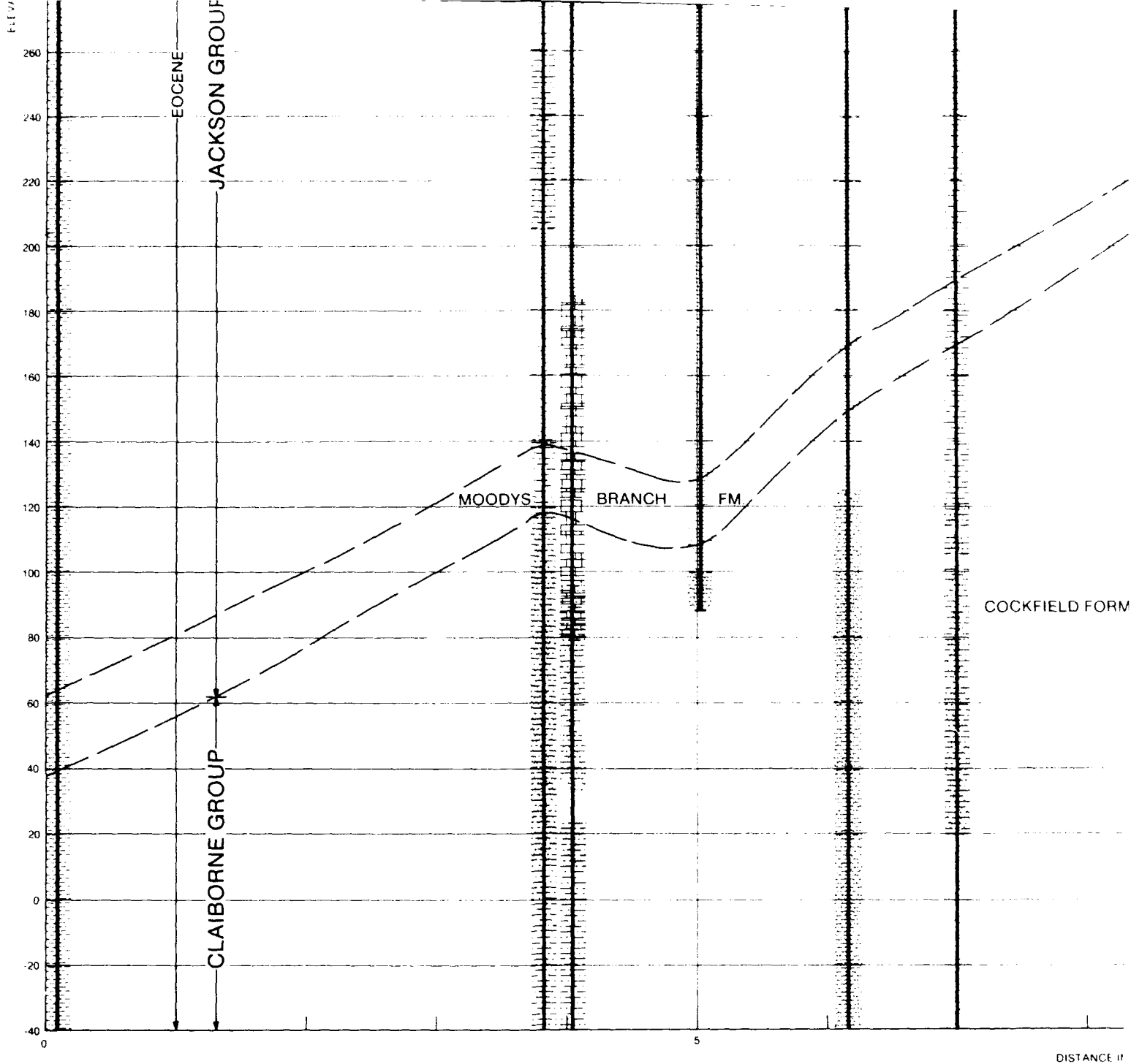
MORTON, MS



A'







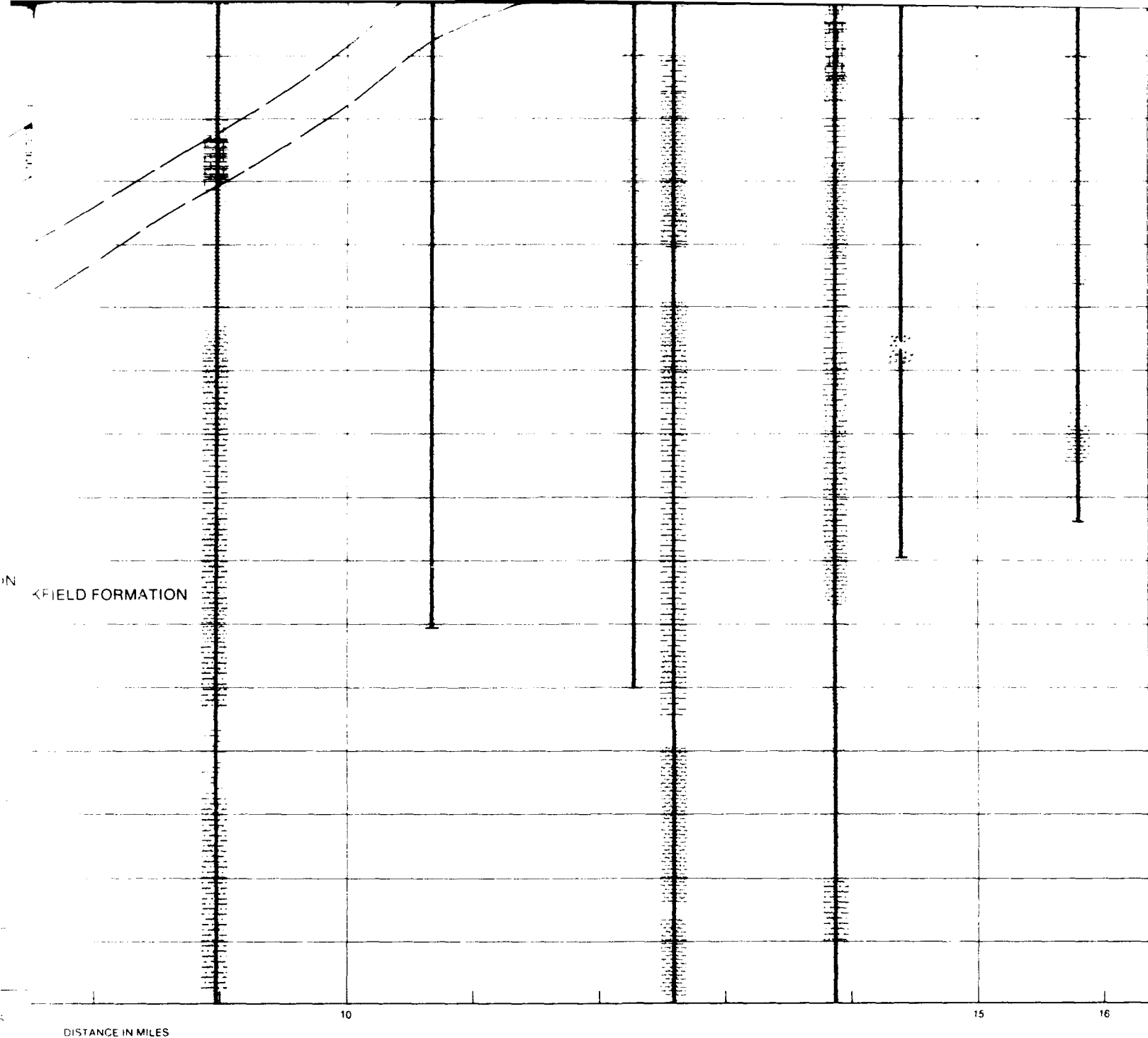
### LEGEND

#### LITHOLOGIC TYPES

	CLAY		MARL
	SAND		SHALE
	ROCKS		COARSE MATERIAL

#### MAPPING SYMBOLS

	UPLAND FLUVIAL COMPLEX
	TERTIARY SURFACE

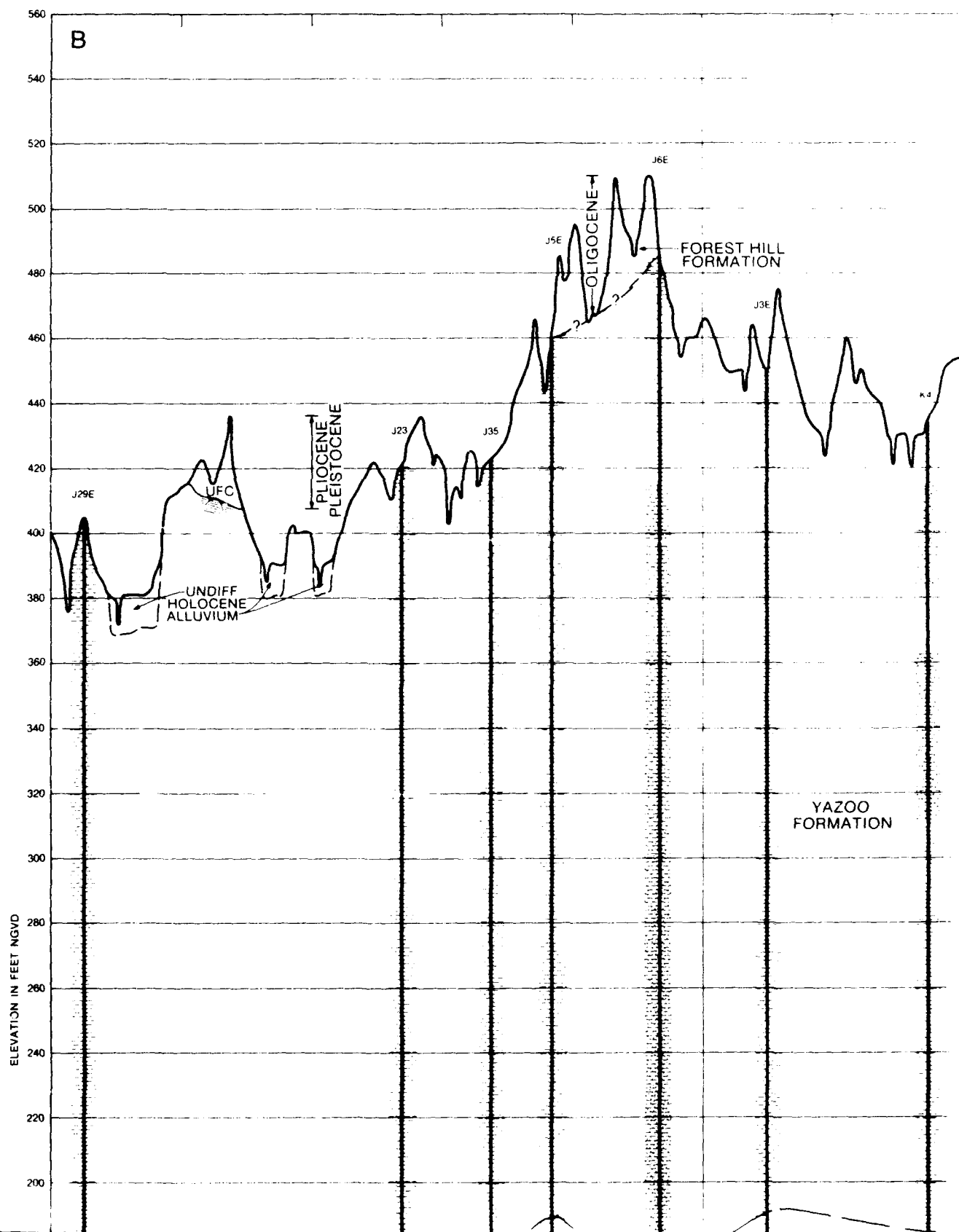


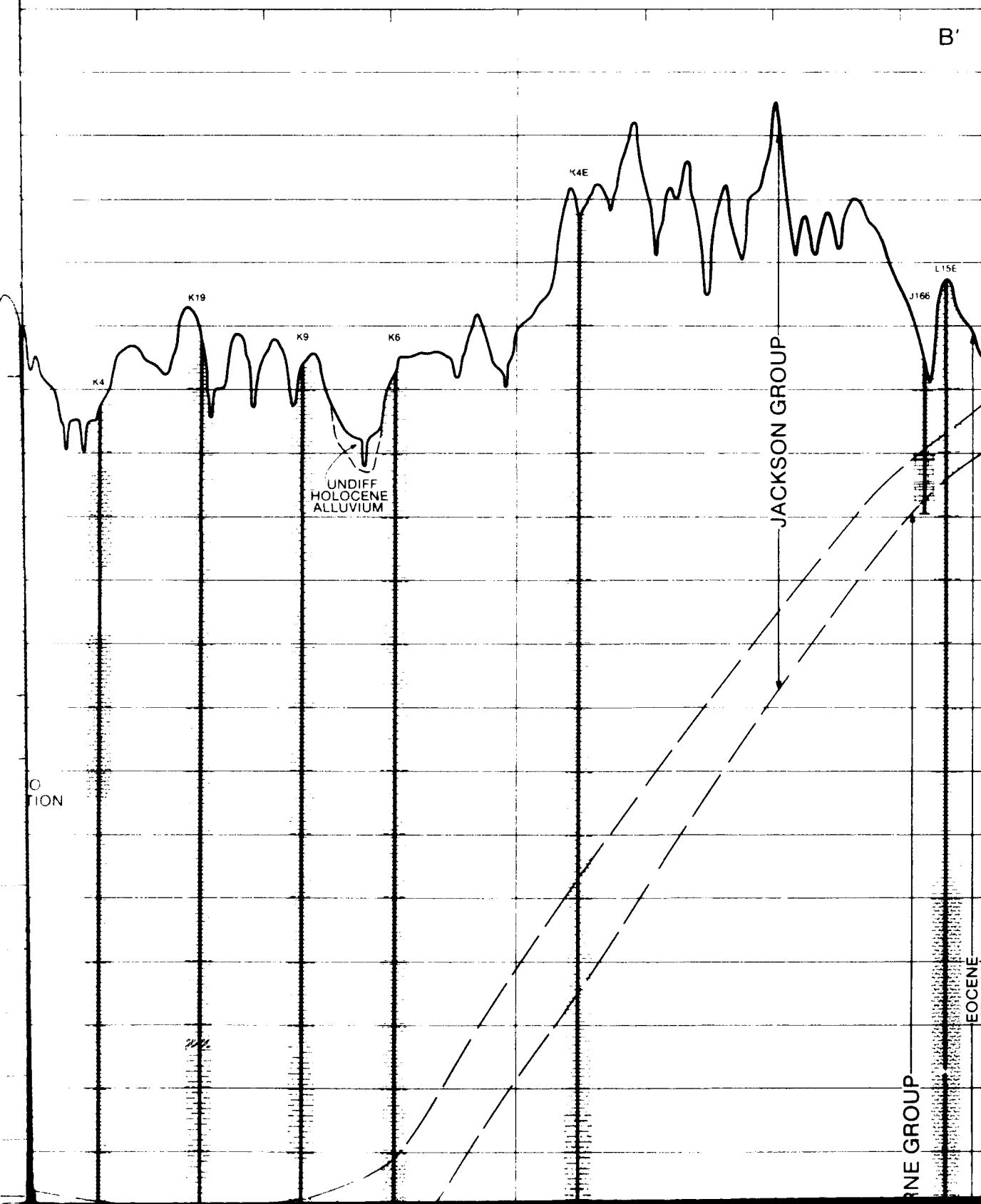
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PEARL RIVER BASIN

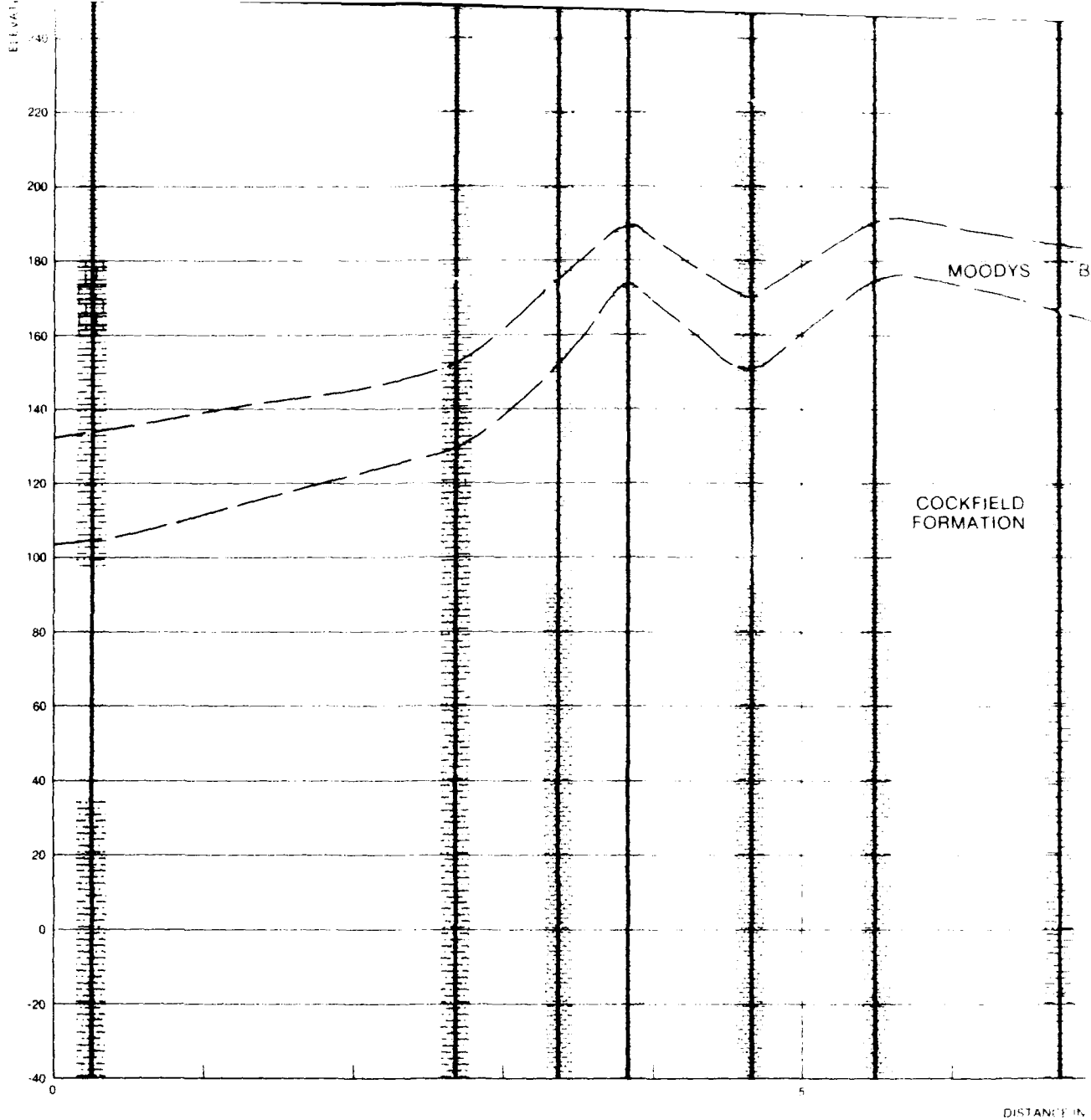
SECTION A-A'

MORTON, MS.

MORTON (







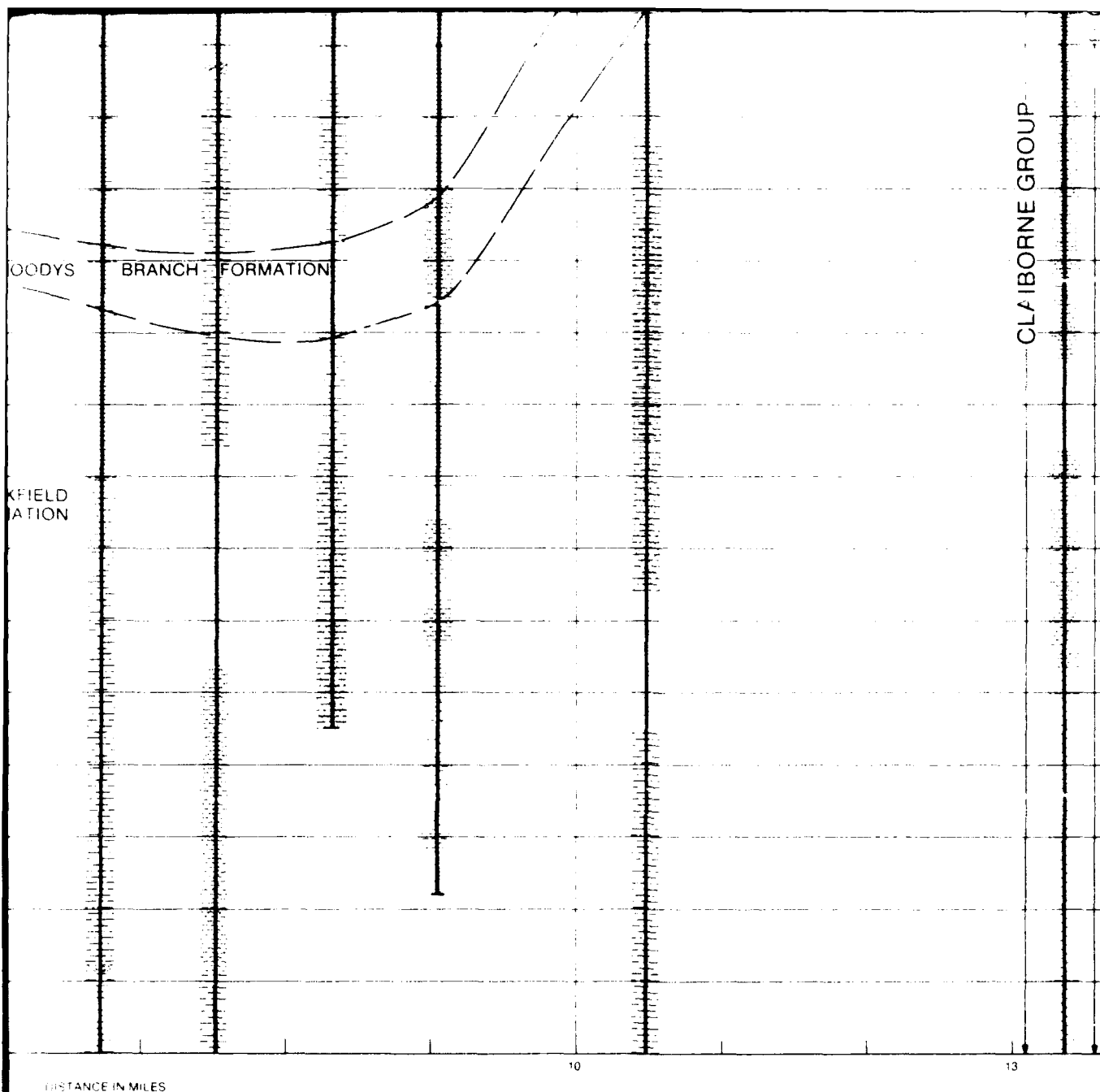
### LEGEND

#### LITHOLOGIC TYPES

	CLAY		MARL
	SAND		SHALE
	ROCKS		

#### MAPPING SYMBOLS

	UNDIFFERENTIATED TERRACE
	TERTIARY SURFACE



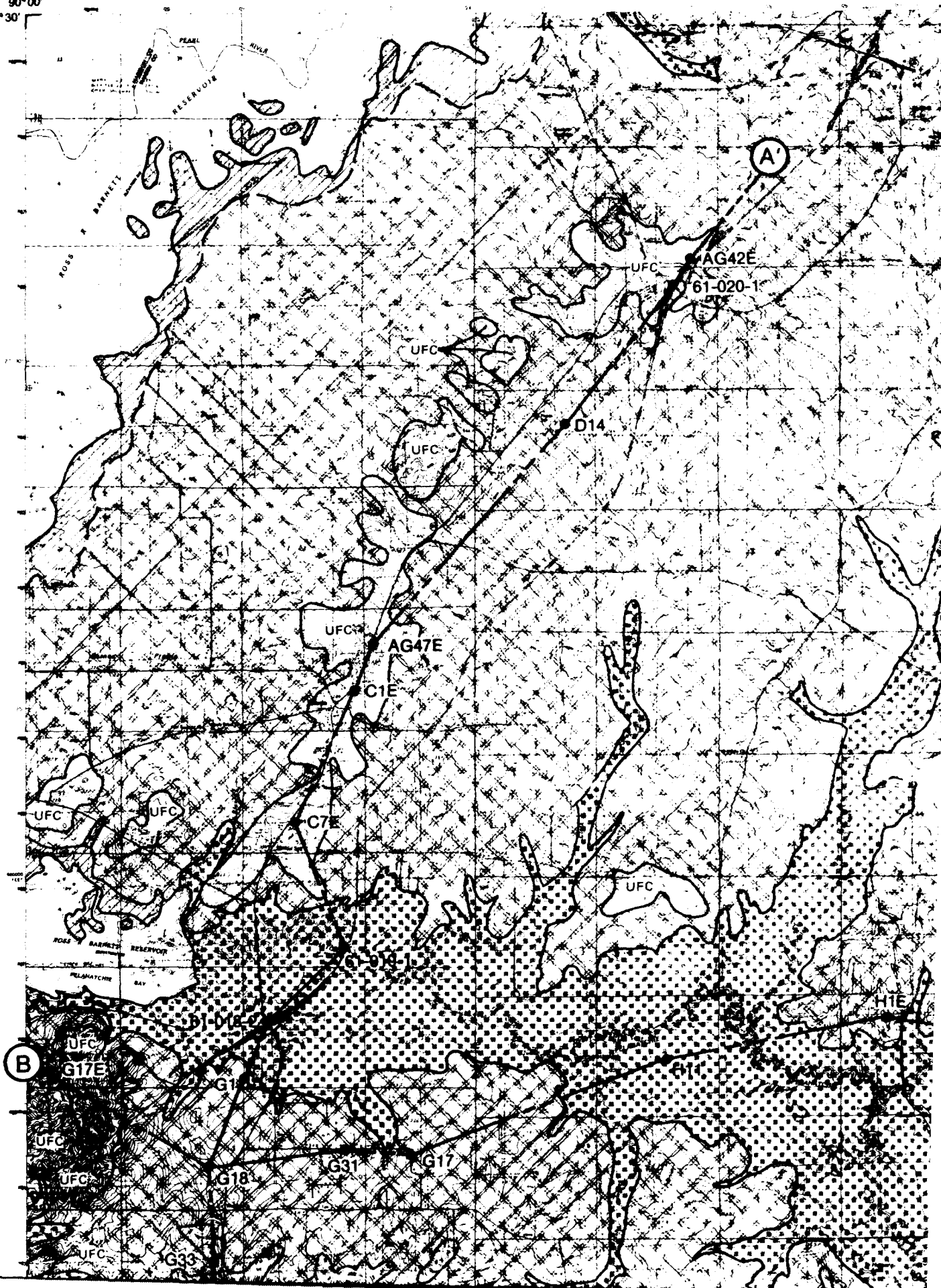
GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION B-B'

MORTON, MS.

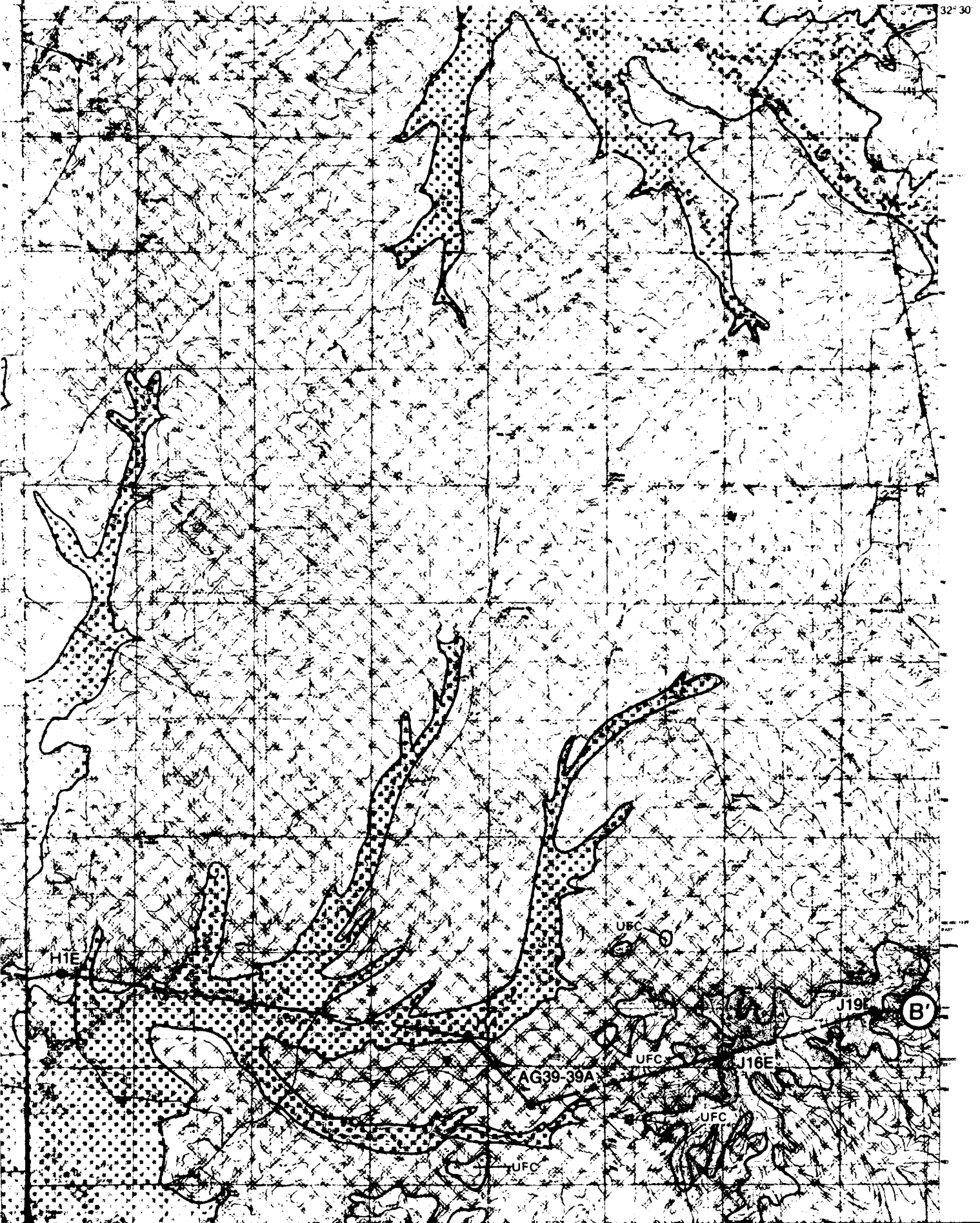
U.S. ARMY  
CORPS OF ENGINEERS

90°00'  
32°30'

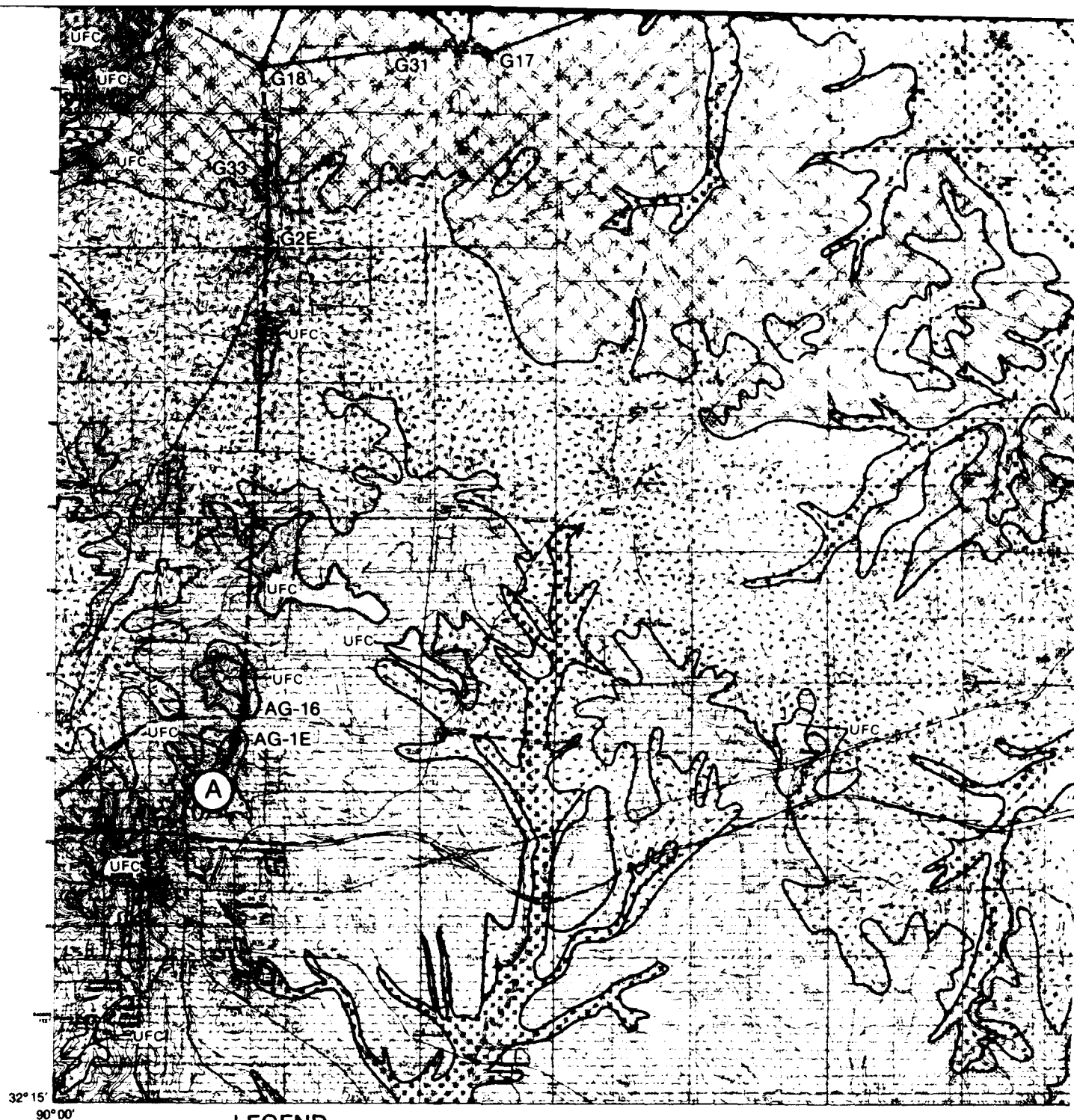


PELAHATCHIE QUADRANGLE  
MISSISSIPPI

89° 45'  
32° 30'







### LEGEND

#### QUATERNARY

##### HOLOCENE

- UNDIFFERENTIATED ALLUVIUM
- SHALLOW LACUSTRINE

#### QUATERNARY/TERTIARY

##### PLIO-PLEISTOCENE

- UPLAND FLUVIAL COMPLEX

#### TERTIARY

##### MIOCENE

- CATAHOULA FORMATION

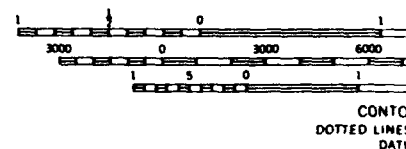
##### OLIGOCENE

- VICKSBURG GROUP (UNDIFFERENTIATED)
- FOREST HILL FORMATION

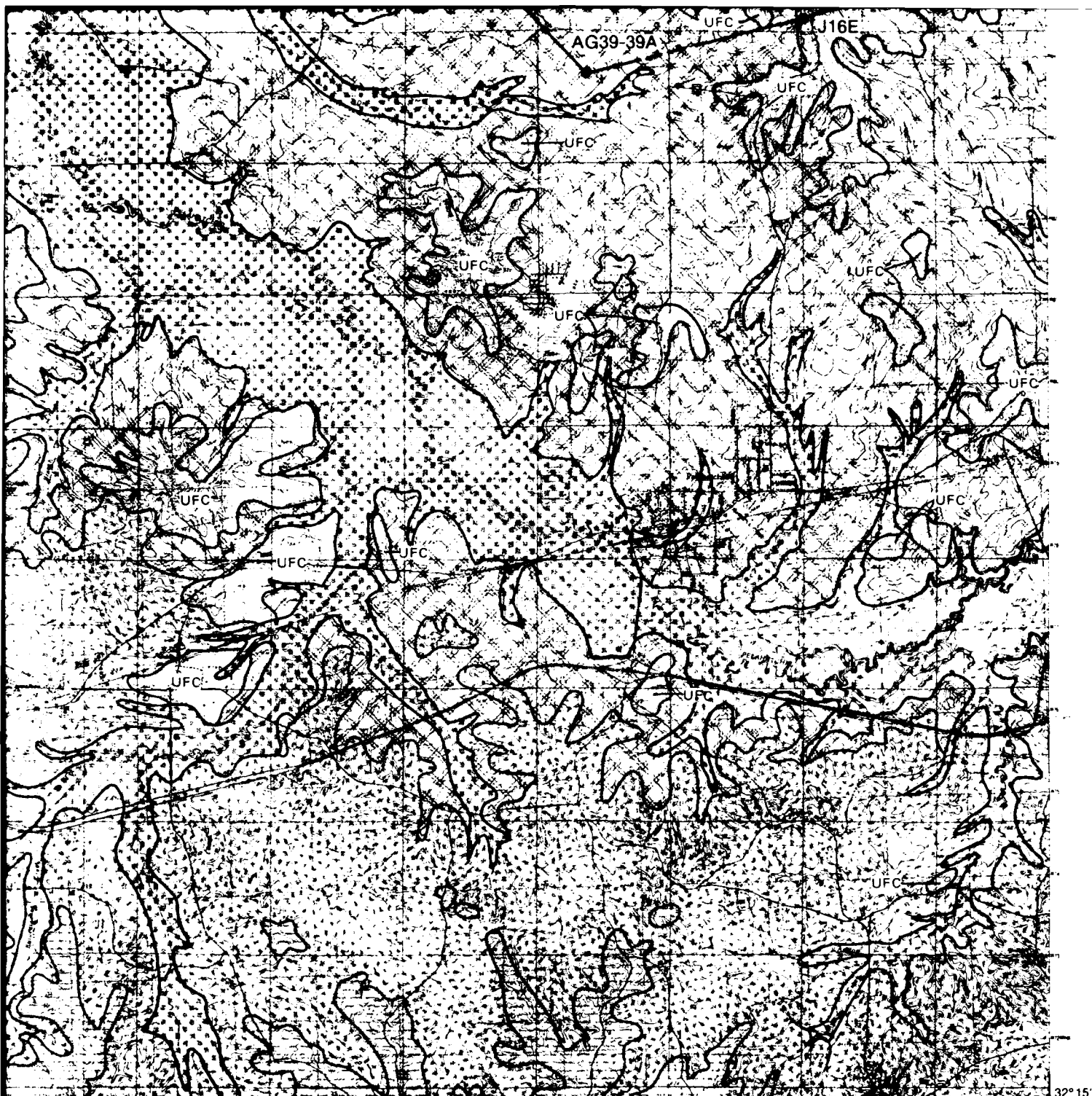
##### EOCENE

- YAZOO FORMATION

- BORINGS USED ON CROSS SECTIONS

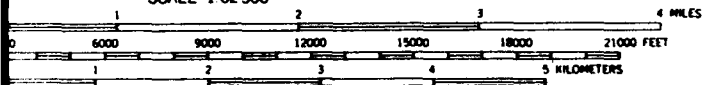


NOTE: Upland geologic contacts be  
County Geologic and Minera  
115; and Morse (1942), "Sc  
Bulletin No. 49.



32° 15'  
89° 45'

SCALE 1:62,500



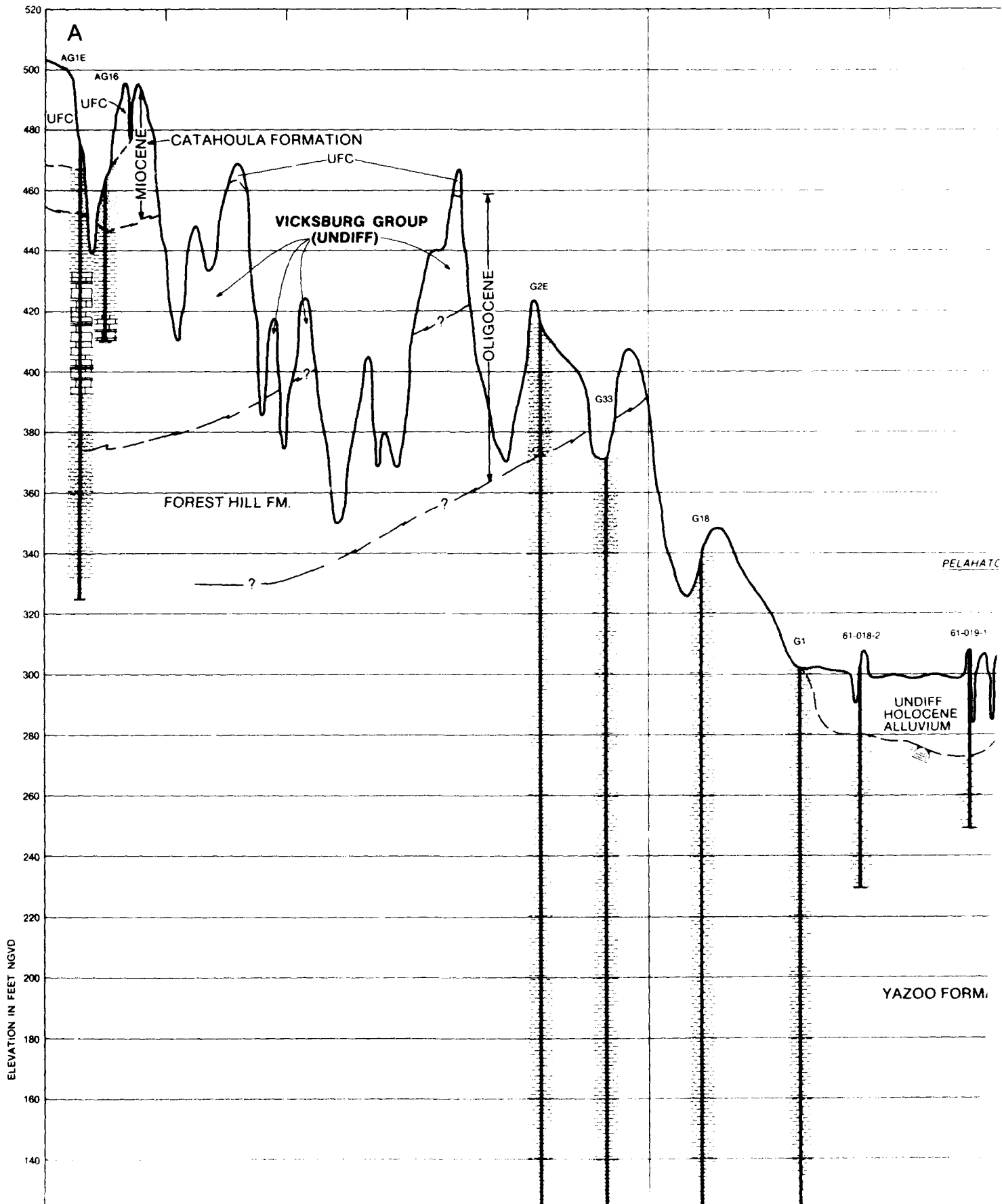
CONTOUR INTERVAL 10 FEET  
DOTTED LINES REPRESENT 5-FOOT CONTOURS  
DATUM IS MEAN SEA LEVEL

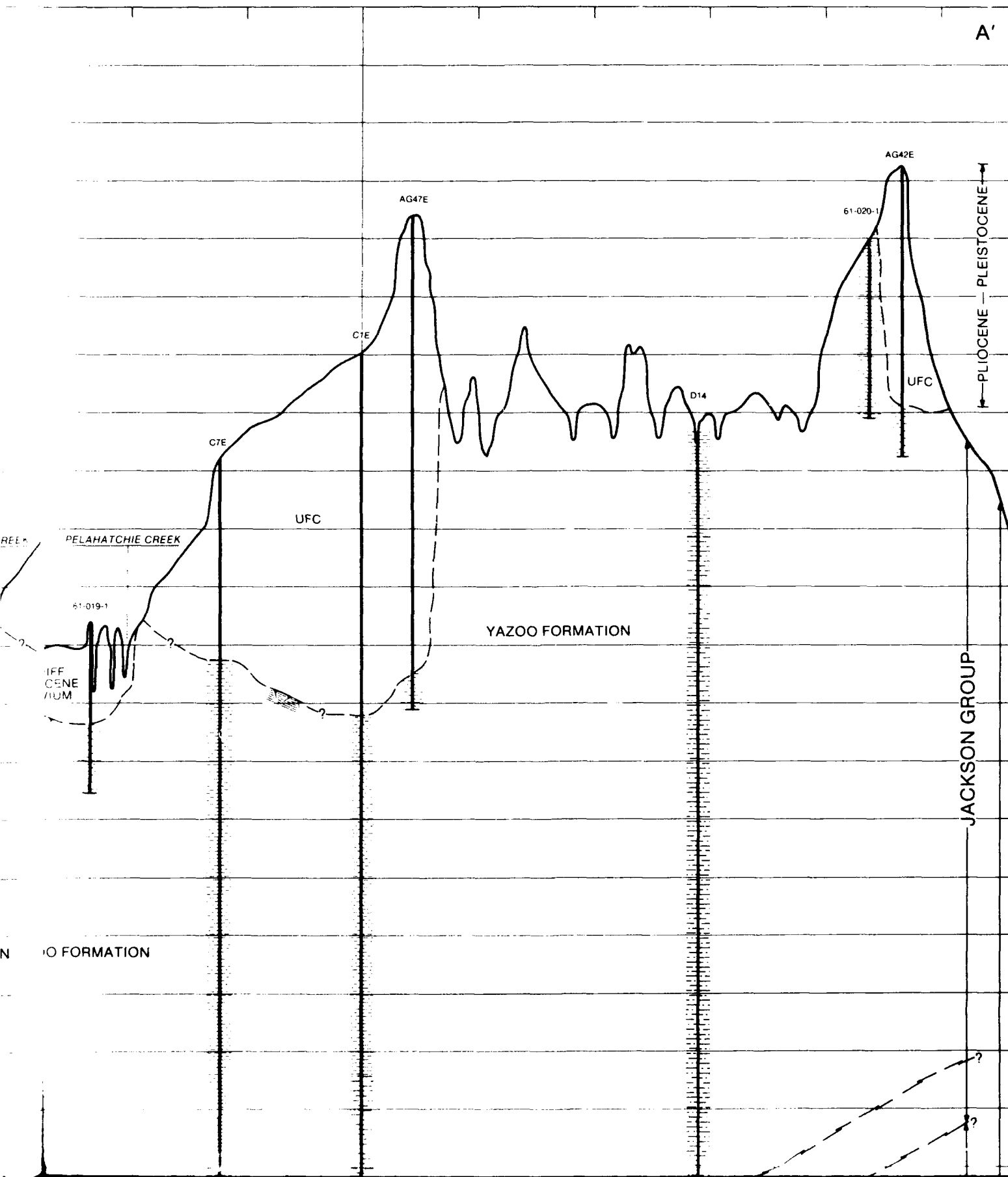
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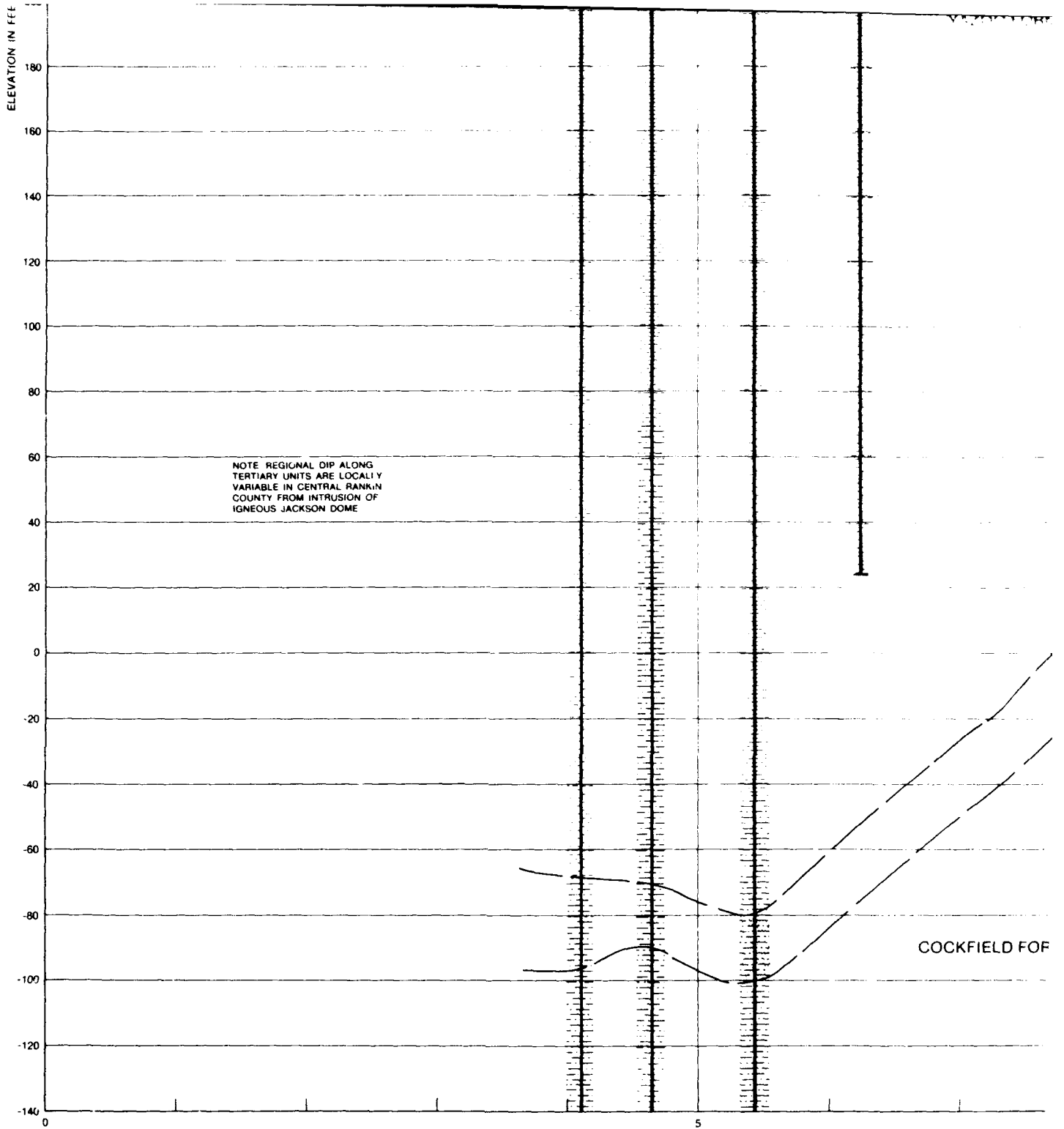
GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SURFACE GEOLOGY

PELAHATCHIE, MS







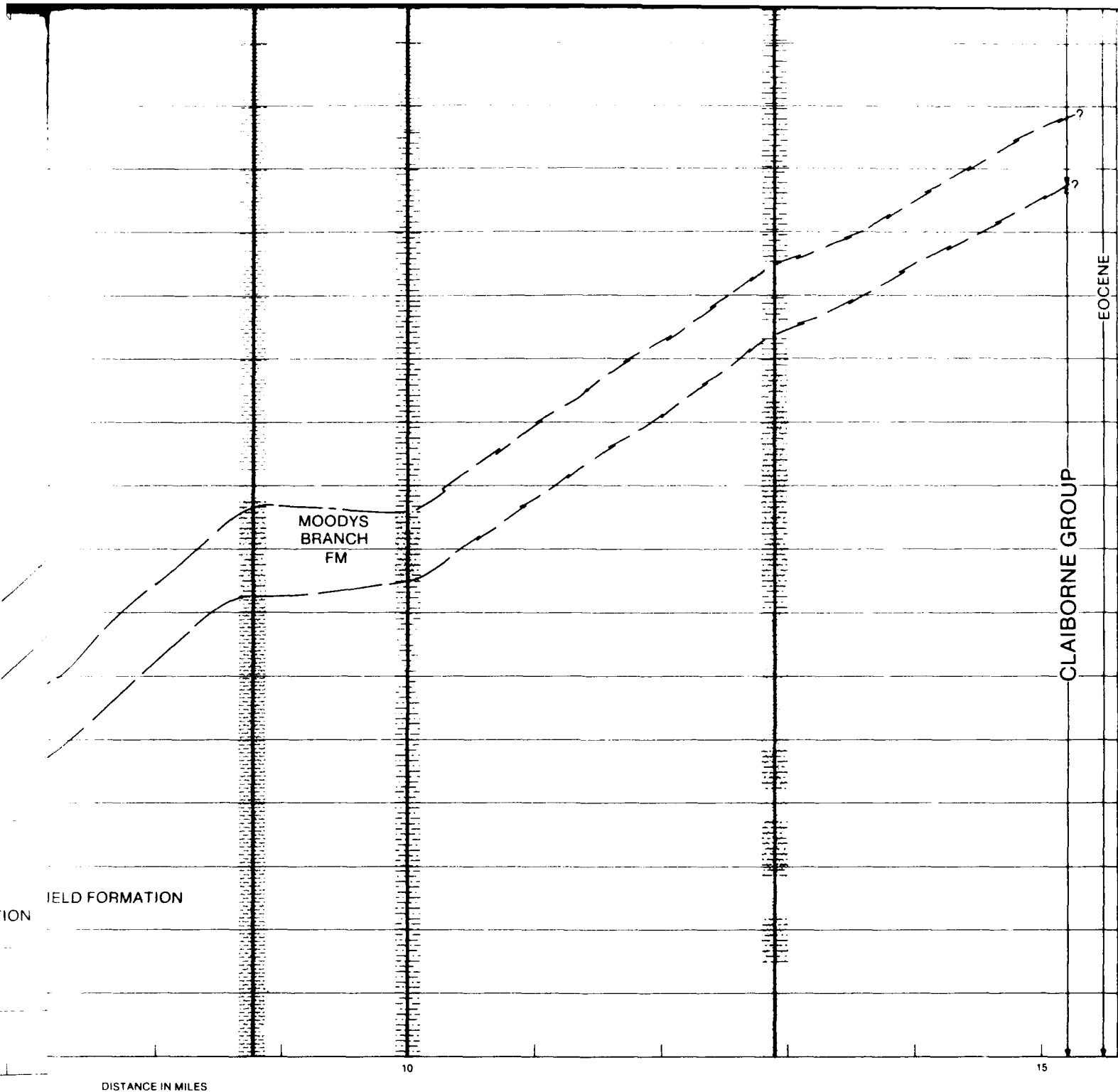
### LEGEND

#### LITHOLOGIC TYPES

	CLAY		MARL
	SAND		SHALE

#### MAPPING SYMBOLS

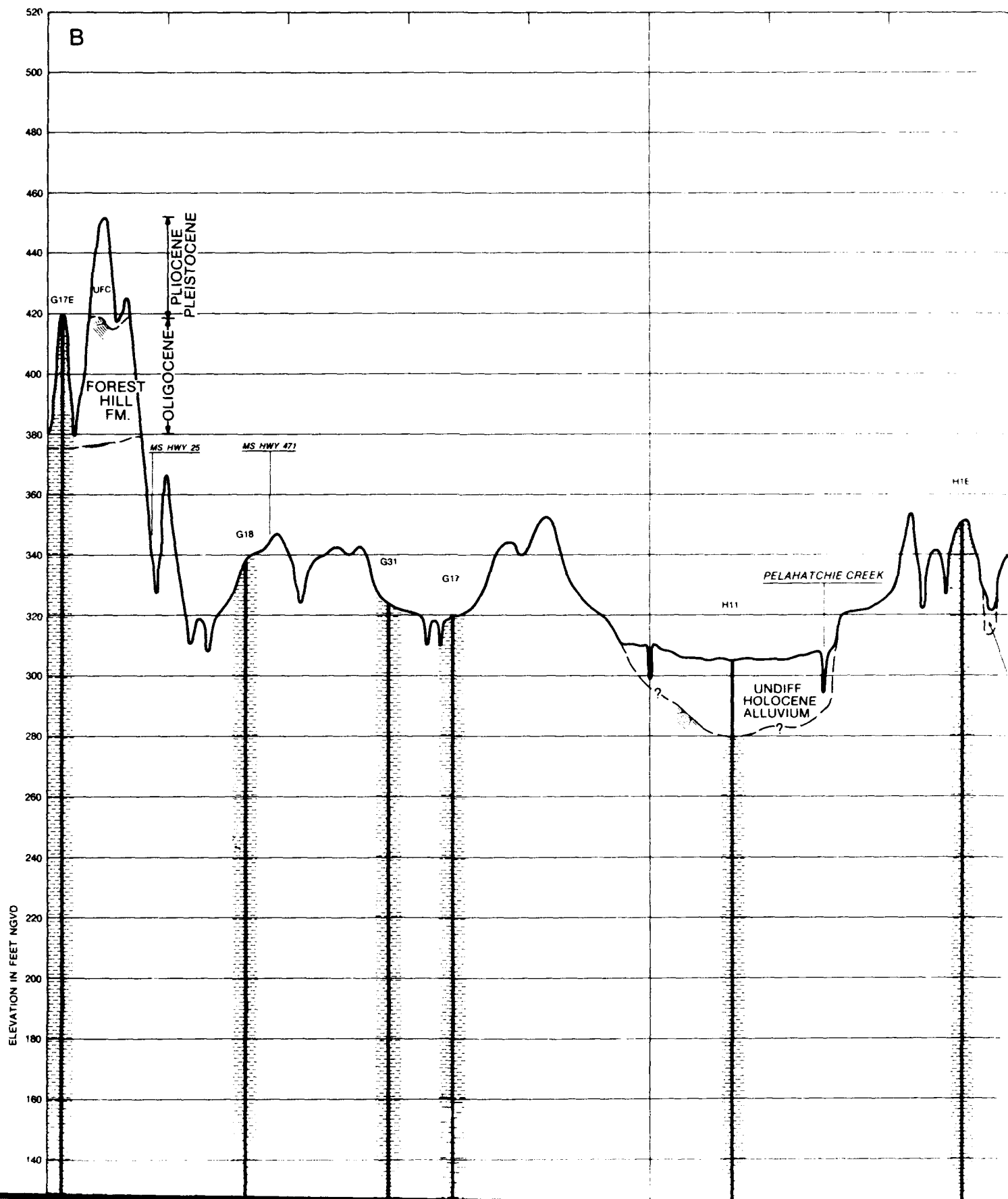
	UPLAND FLUVIAL COMPLEX
	TERTIARY SURFACE

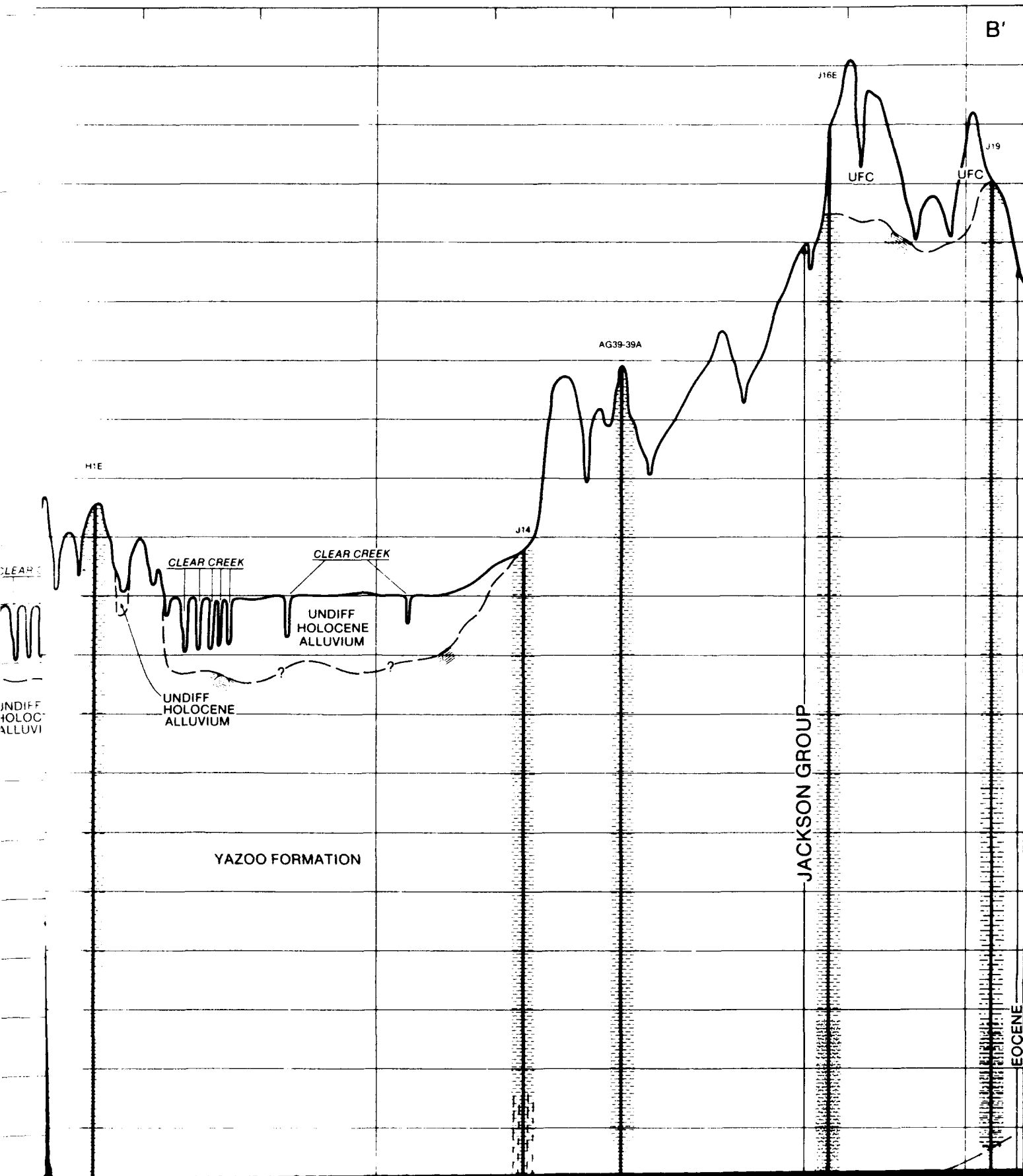


GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

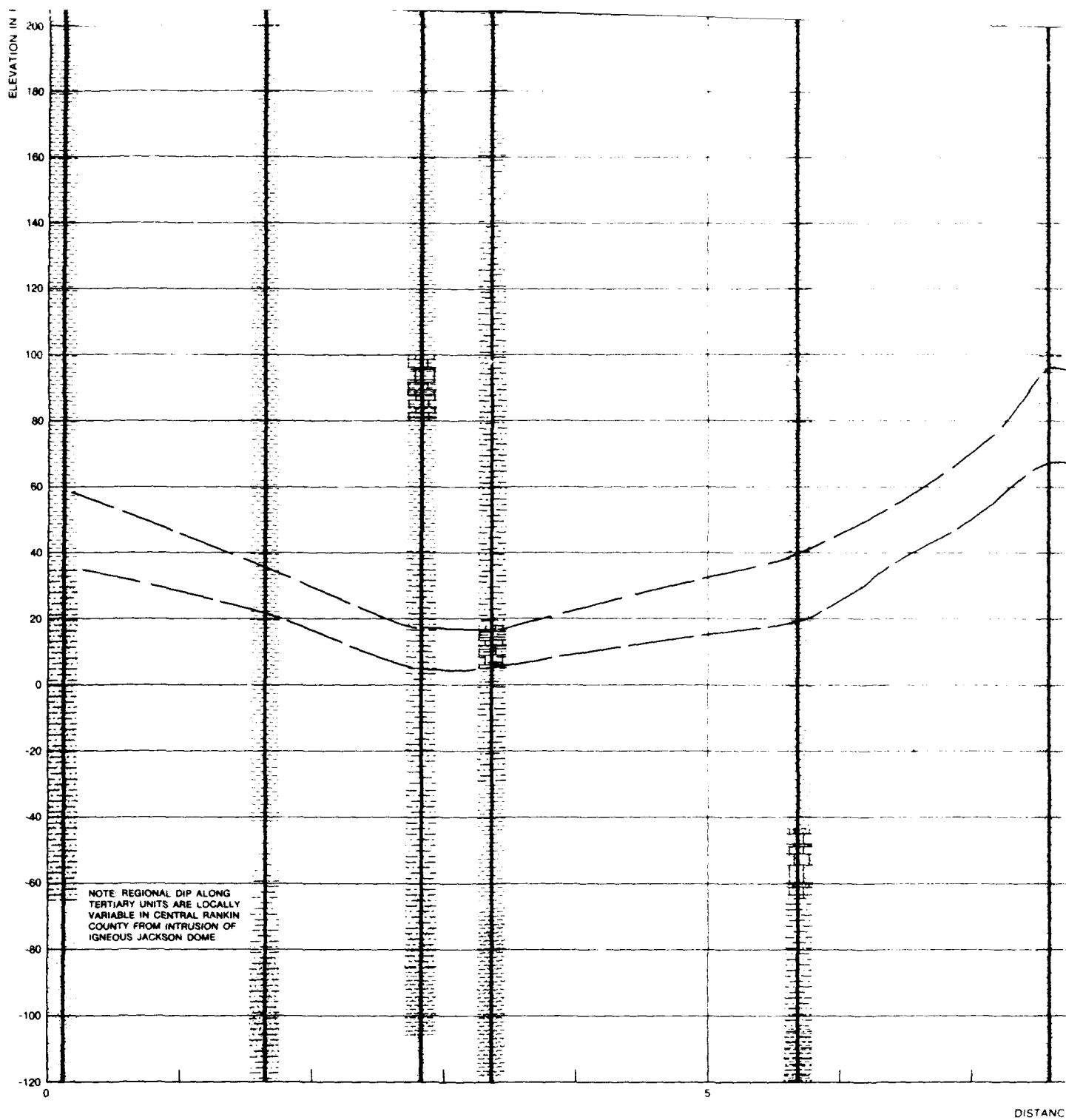
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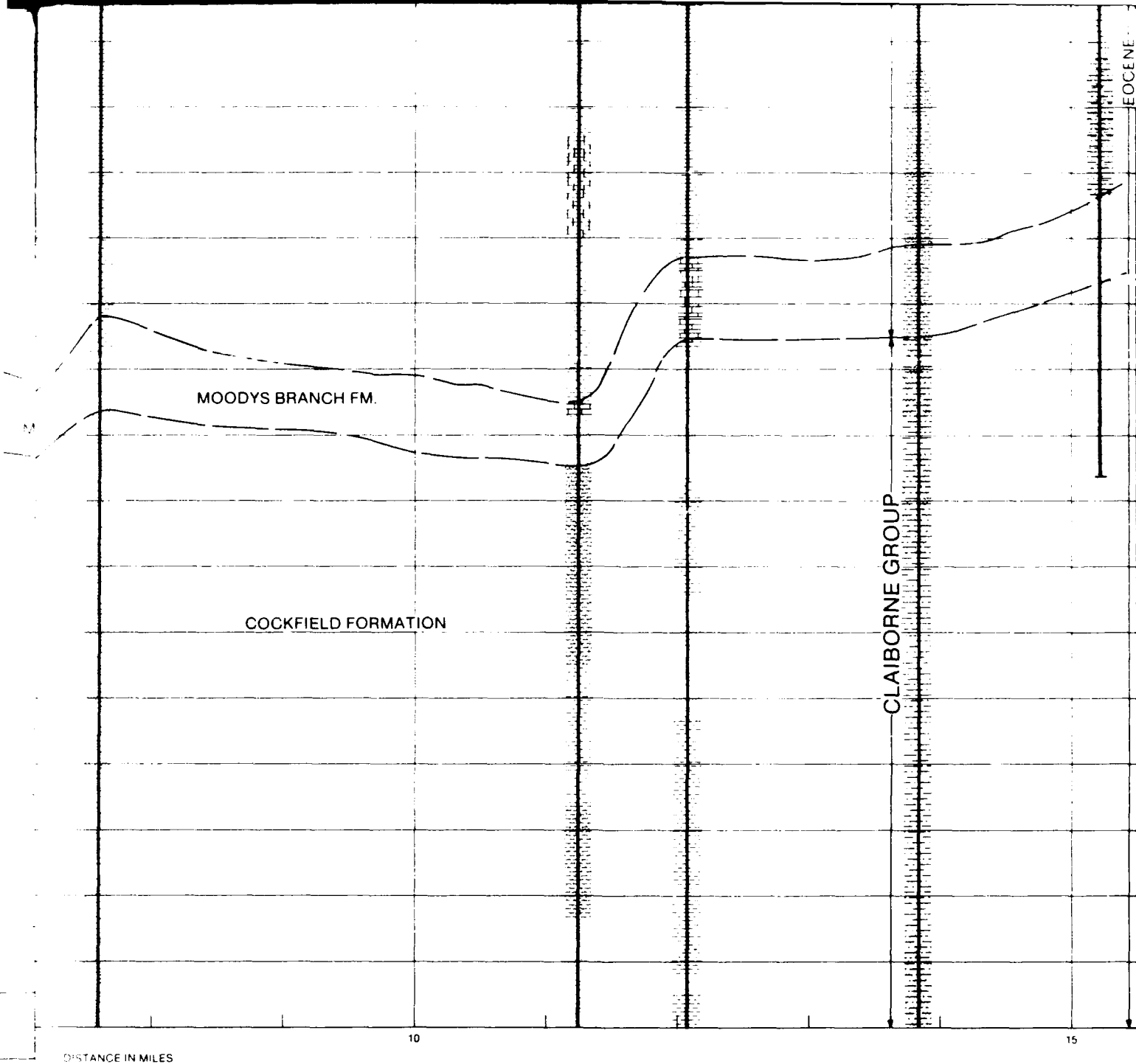
PELAHATCHIE, MS.











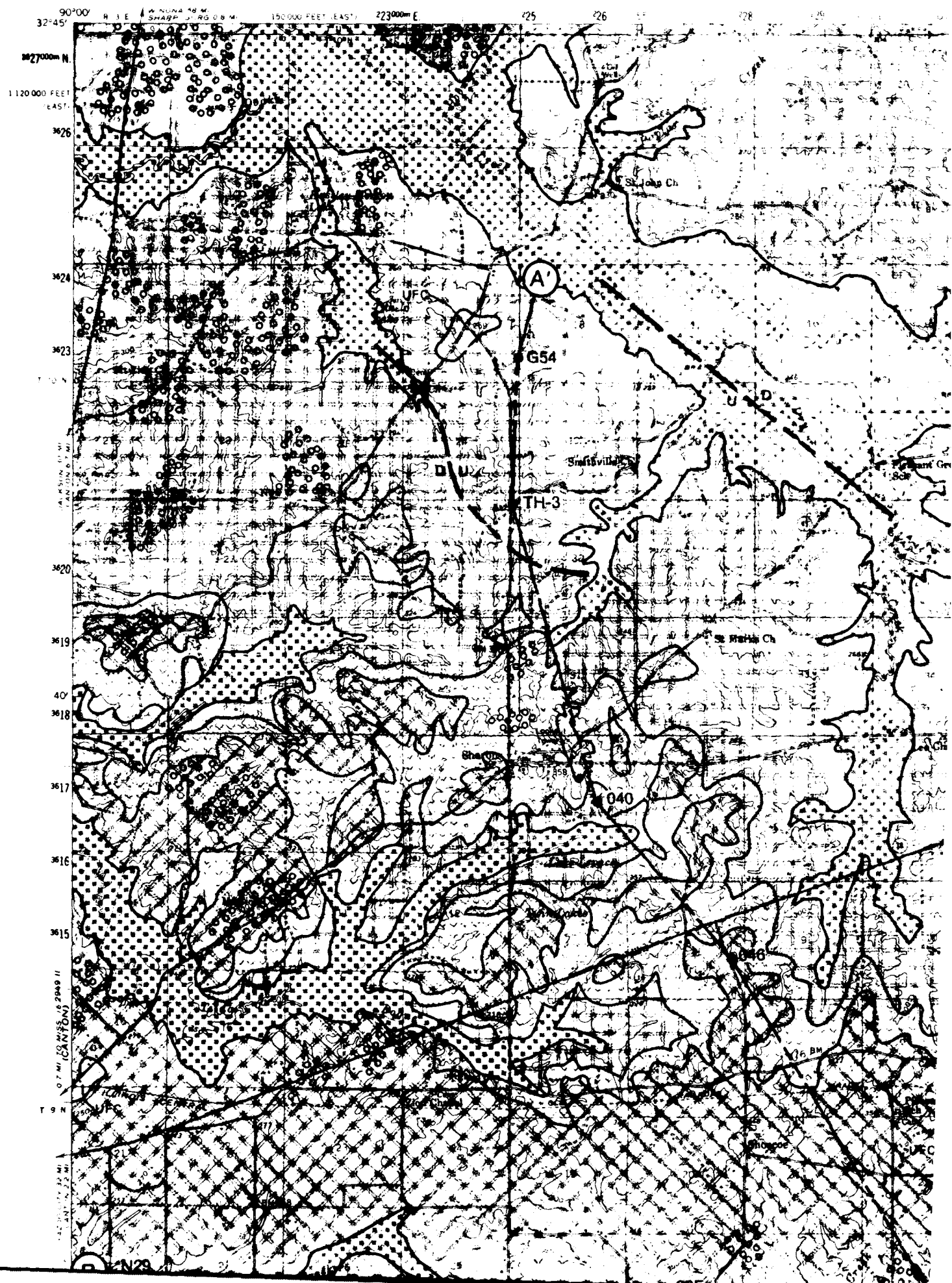
GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION B-B'

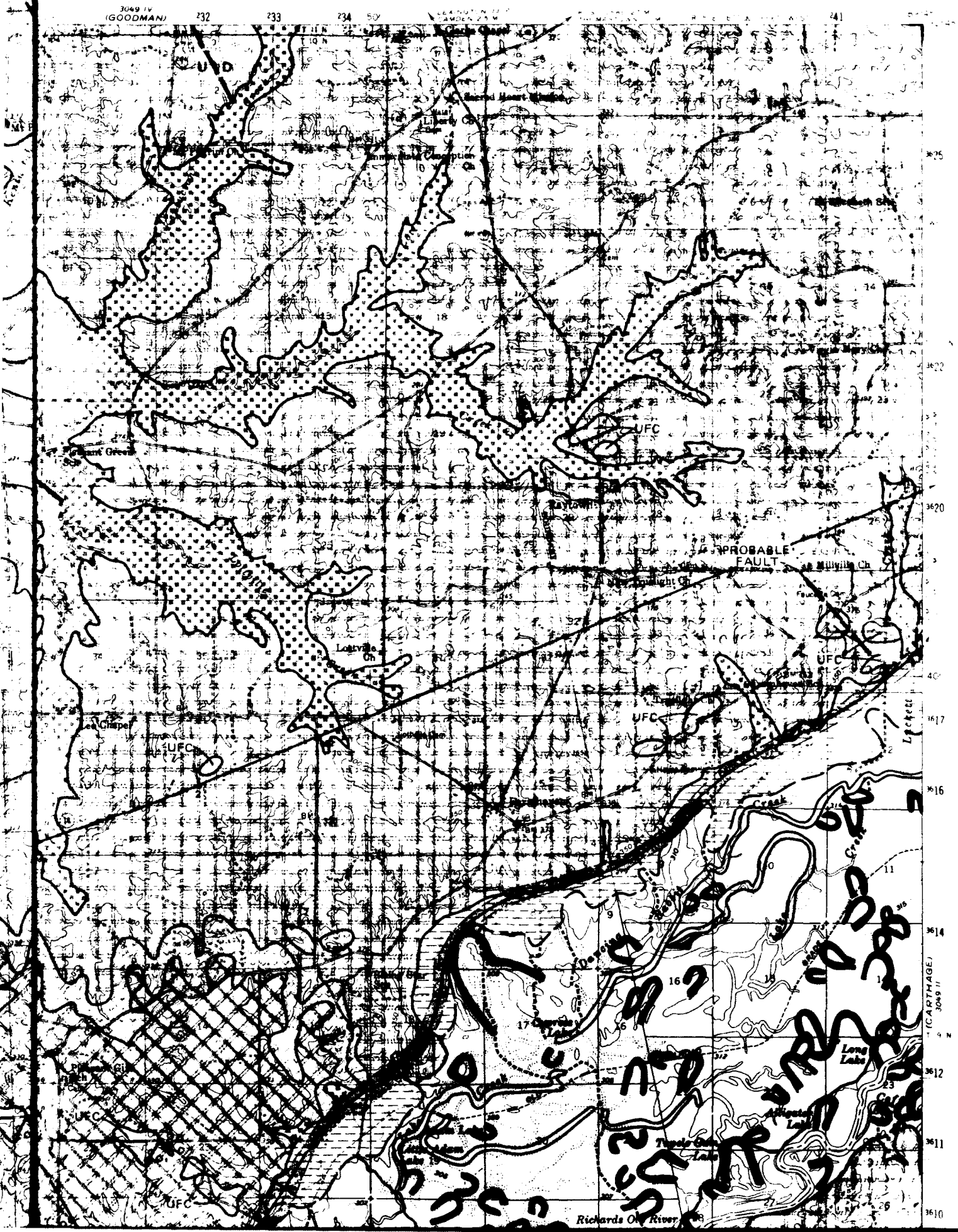
PELAHATCHIE, MS.

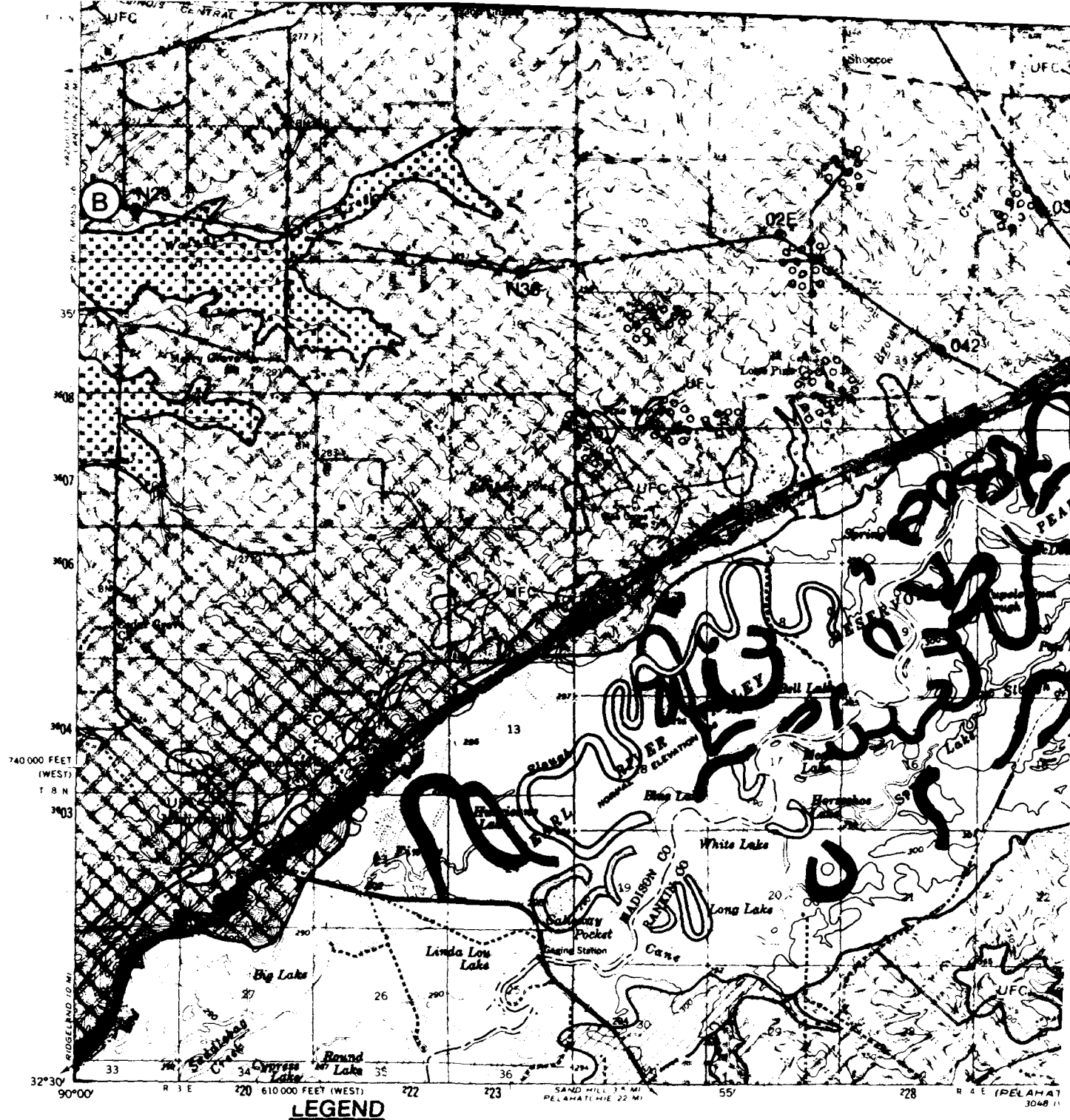
PELAHATCHIE

90°00' H 3 E W NUNA 38 M. SHARP S. R. G. 0.8 M. 150,000 FEET (EAST) 223,000 M E 225 226 227 228 229

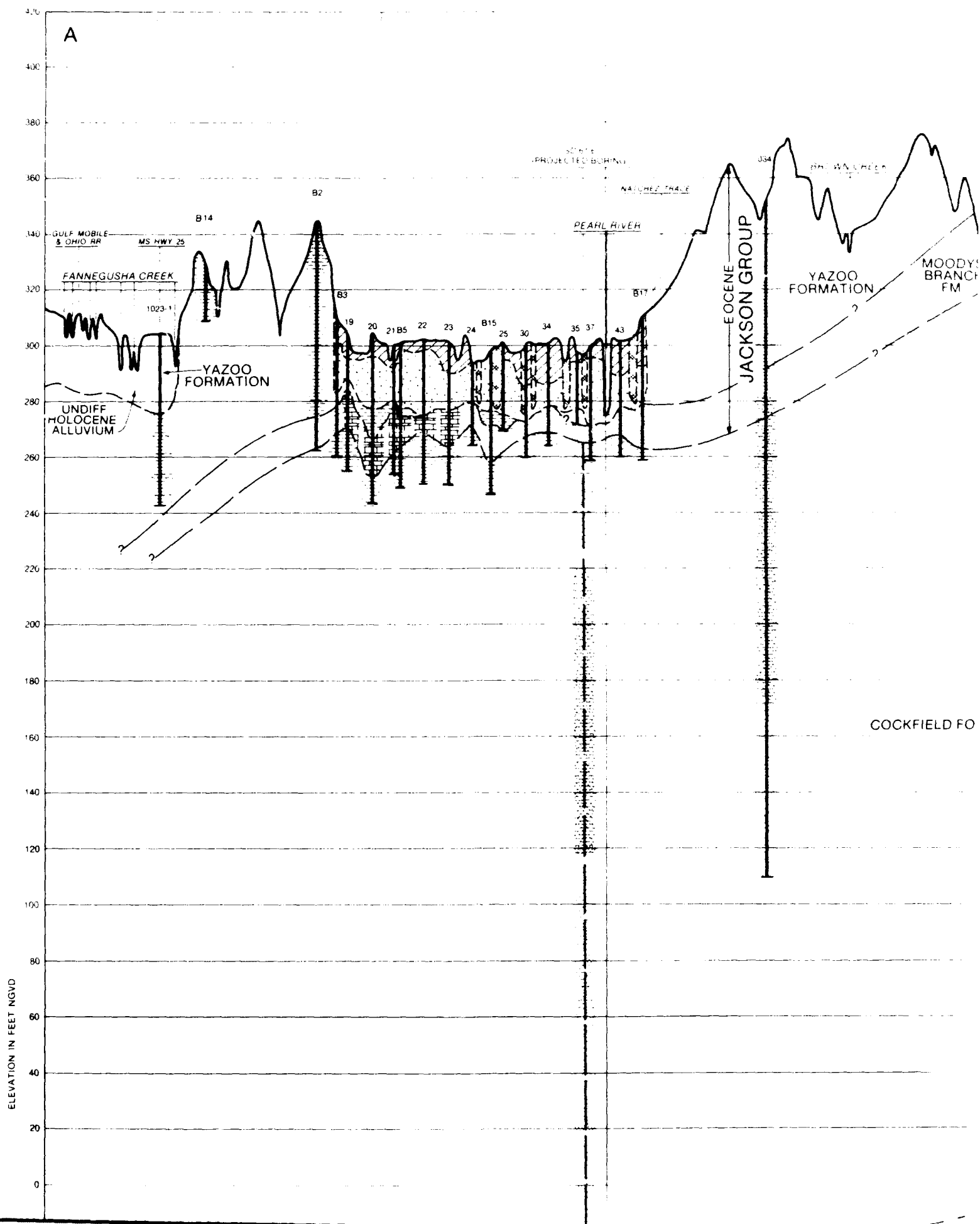


SHARON QUADRANGLE  
MISSISSIPPI

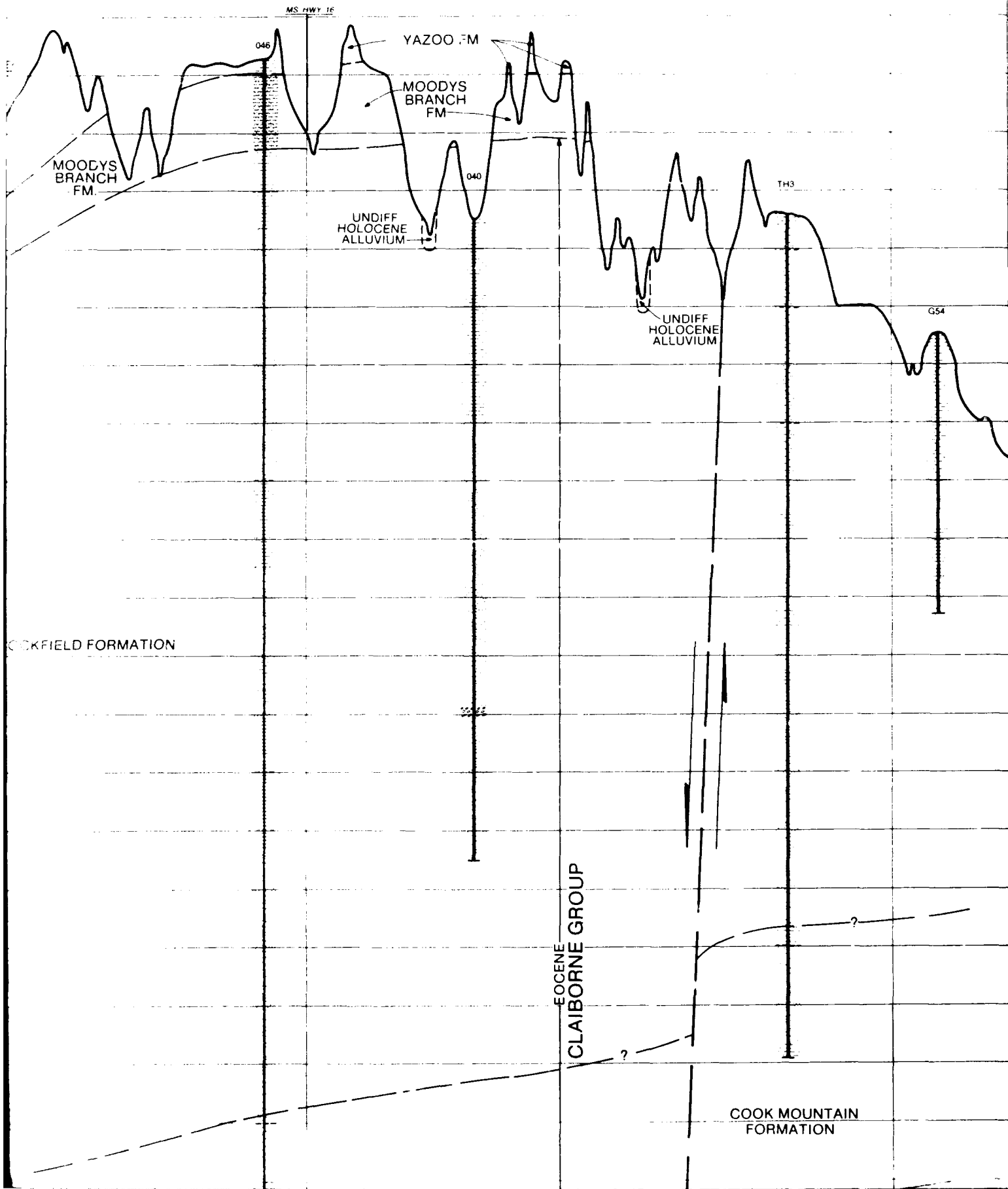




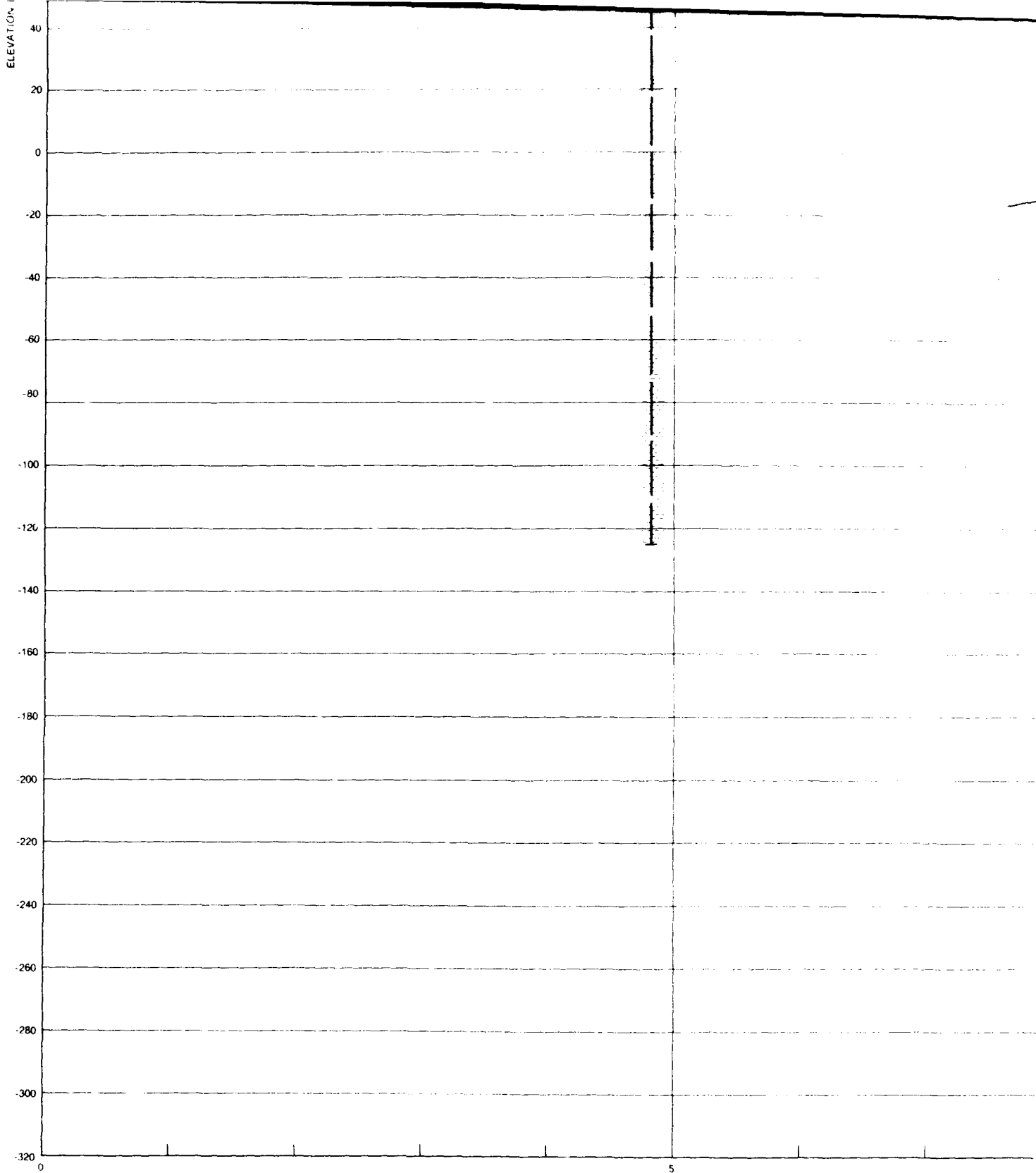




A'















DISTANCE

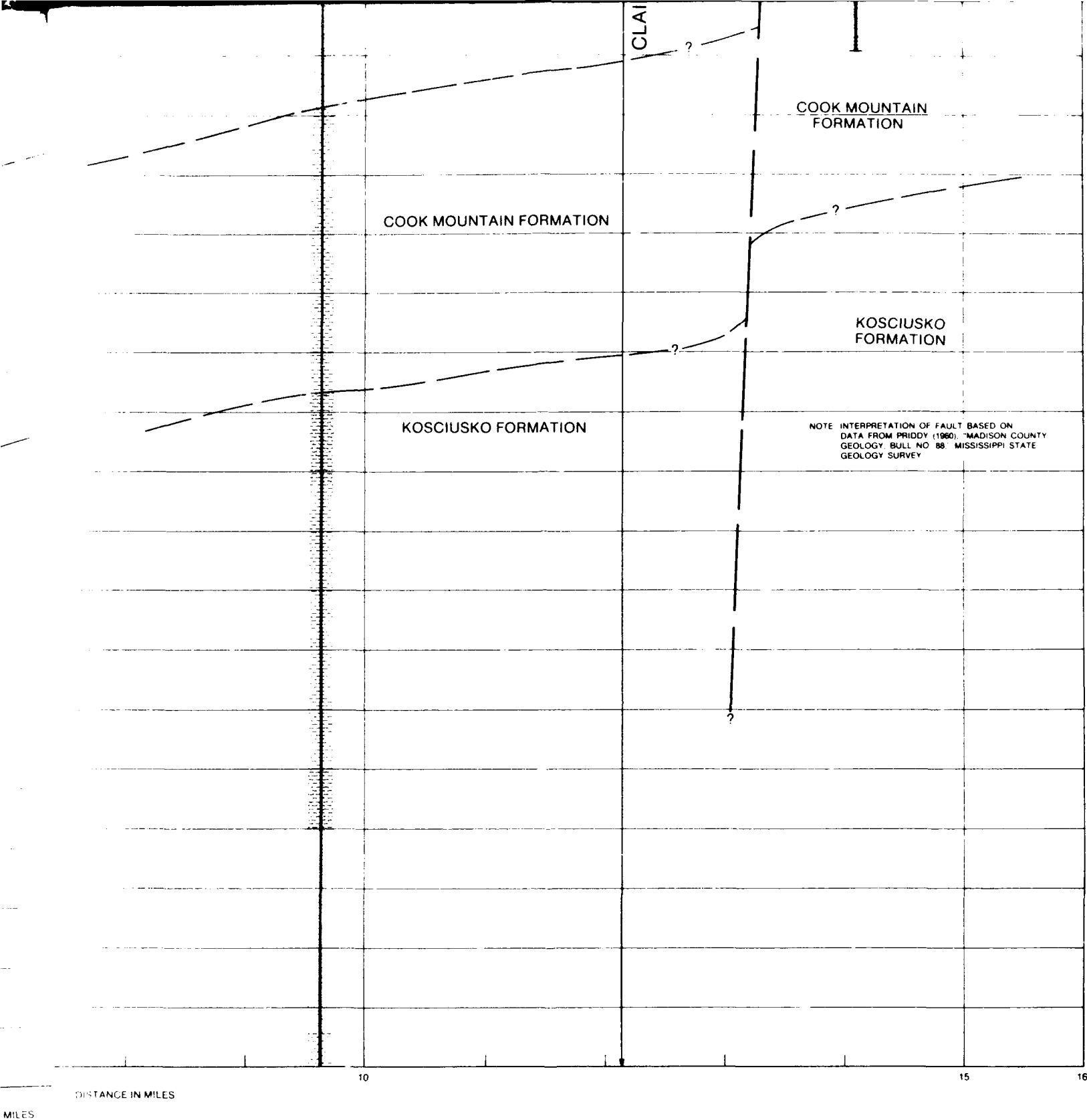
### LEGEND

#### ENVIRONMENTS OF DEPOSITION

TOPSTRATUM	 POINT BAR
	 ABANDONED CHANNEL
SUBSTRATUM	 UNDIFFERENTIATED SAND

#### LITHOLOGIC TYPES

 CLAY	 MARL
 SAND	 SHALE
 ROCKS	

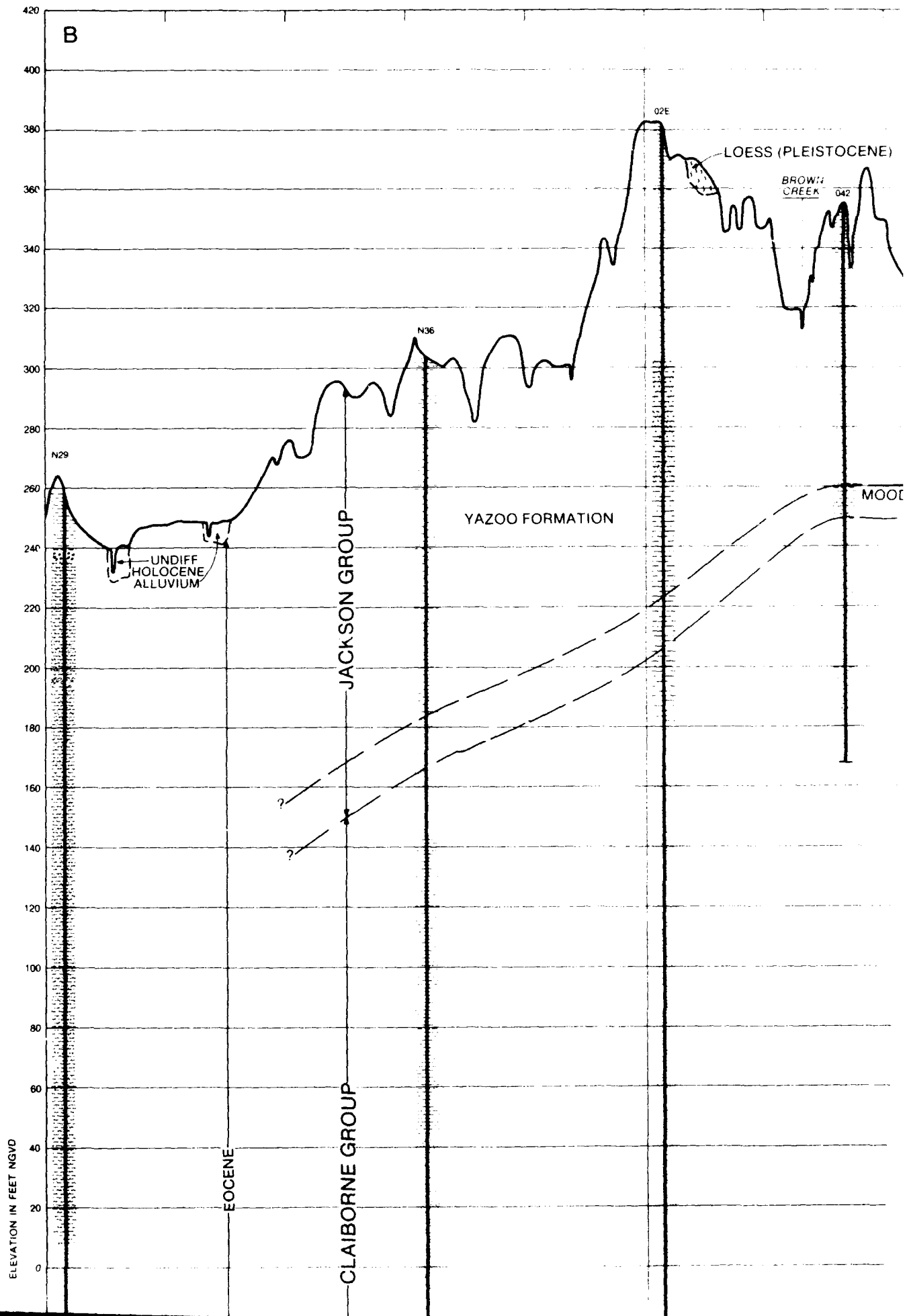


GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION A-A'

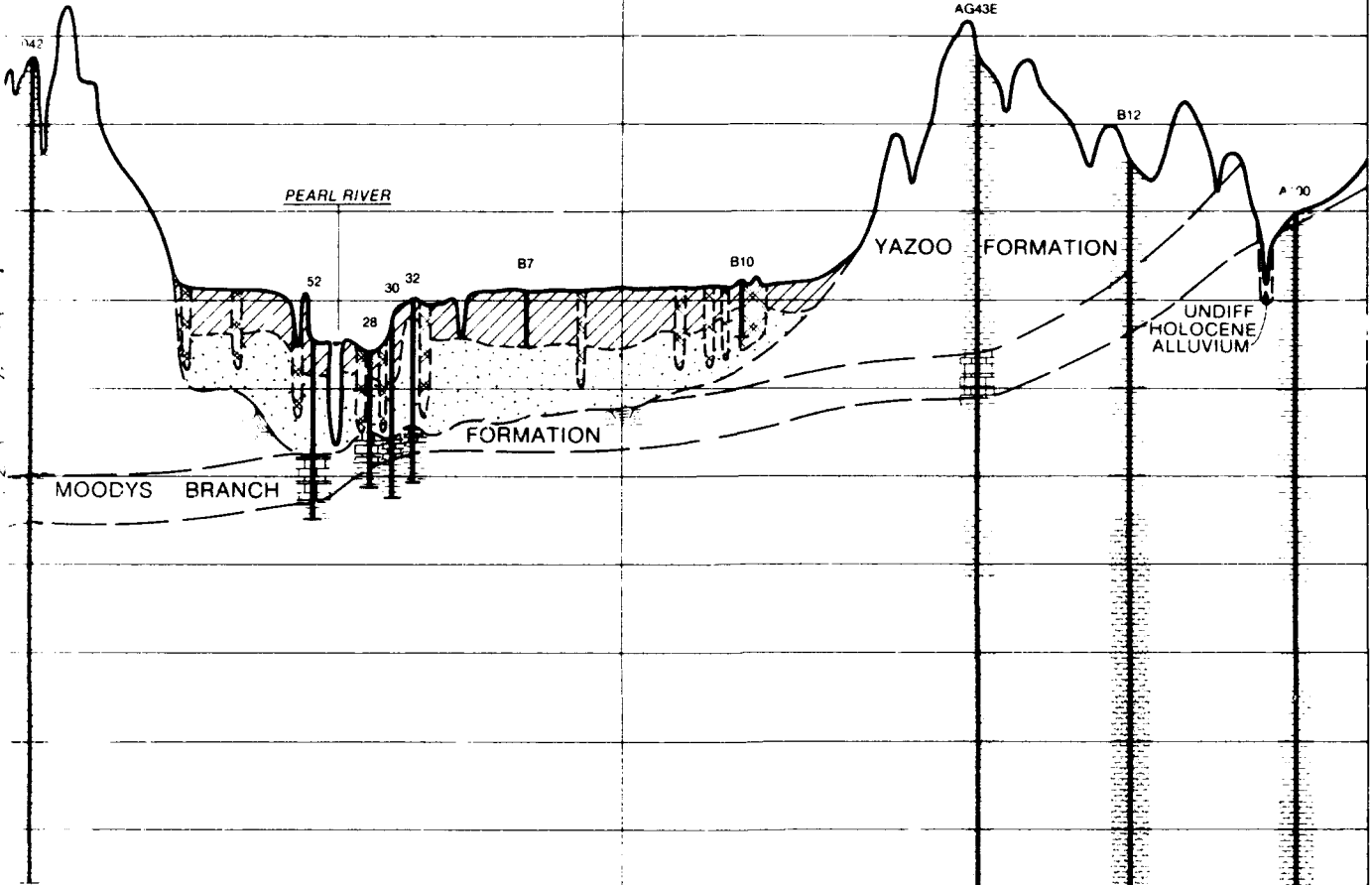
SHARON, MS.

SHARON



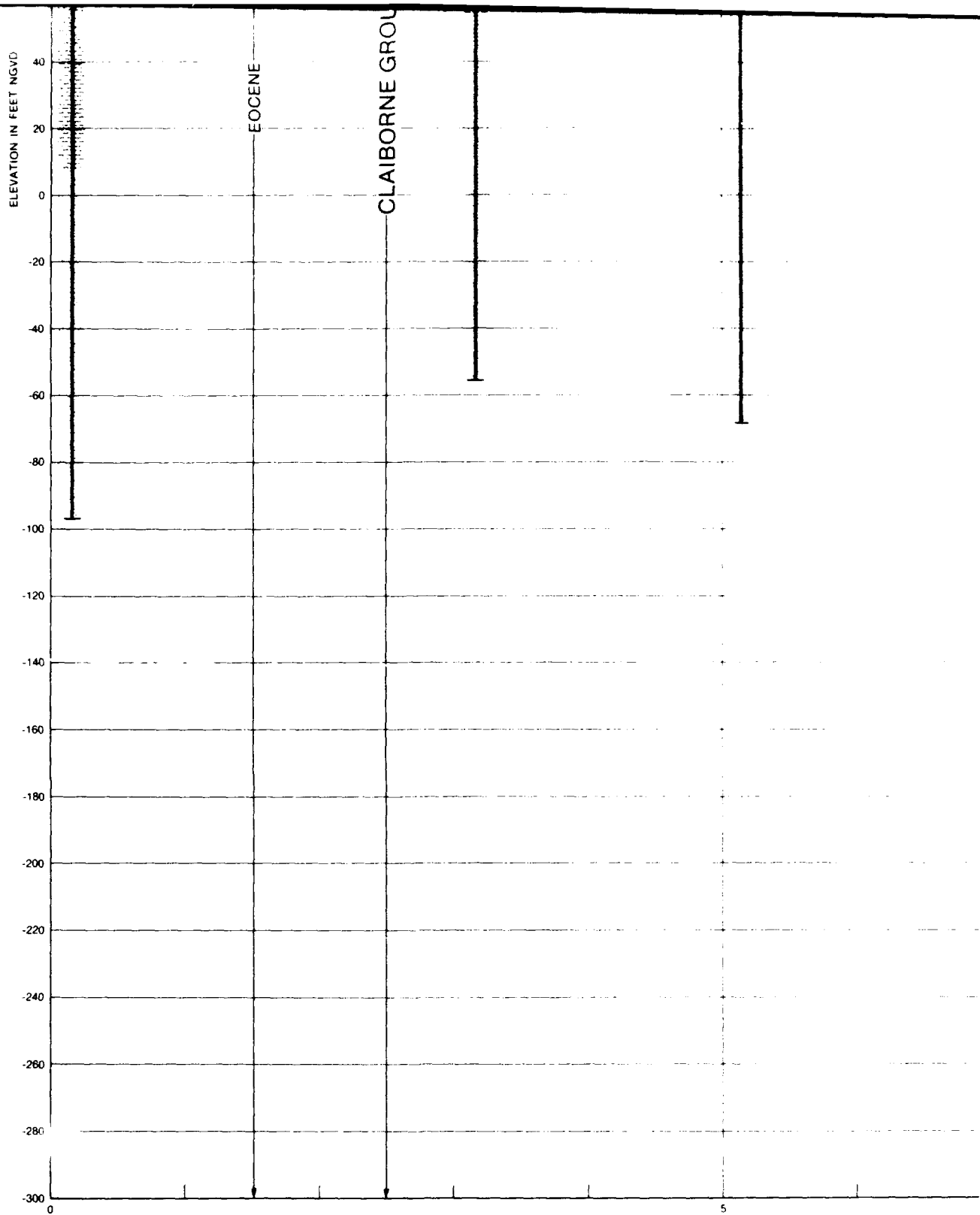
B'

TOCENE)



COCKE

COCKFIELD FORMATION



### LEGEND

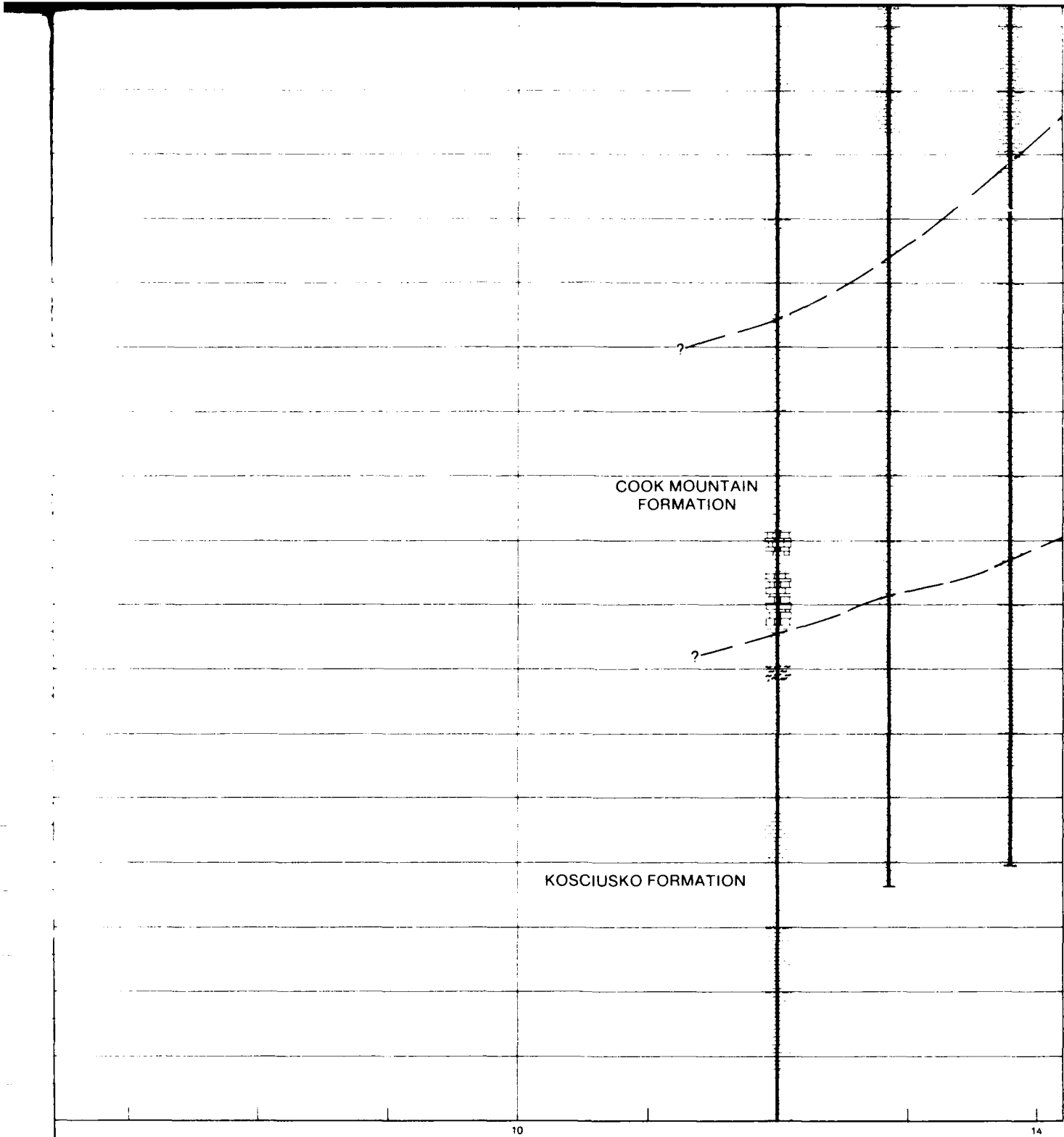
#### ENVIRONMENTS OF DEPOSITION

TOPSTRATUM		POINT BAR
		ABANDONED CHANNEL
SUBSTRATUM		UNDIFFERENTIATED SAND

#### LITHOLOGIC TYPES

	CLAY		MARL
	SAND		SHALE
	ROCKS		LIGNITE

▲ ▲ ▲ TERTIARY SURFACE



DISTANCE IN MILES

10

14

GEOLOGICAL INVESTIGATION  
PEARL RIVER BASIN

SECTION B-B'

SHARON, MS.